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PRINCIPLES OF THE TREATMENT OF INFANTILE PARALYSIS

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The question of the treatment of infantile paralysis is in these days always before the medical profession of the United States, because each summer since 1907 has left behind it hundreds and sometimes thousands of victims, and with our added experience and our facilities for clinical observation, unfortunately far greater than anywhere else in the world, our ideas of treatment have progressed and have become more defined. If the point of view advanced in this paper is that of an orthopedic surgeon, it is because in most bad cases the surgeon or the orthopedic surgeon is sooner or later consulted, and these two from seeing end-results are perhaps best equipped to judge of the efficiency of the various forms of the earlier treatment.

EARLY DIAGNOSIS IN RELATION TO TREATMENT

The diagnosis of the disease before the appearance of paralysis is constantly overlooked. This is a cause of dissatisfaction to the family and of mortification to the physician, but probably not of great moment to the patient, for even when a correct or a provisional diagnosis is made early it is doubtful if anything can be done to influence greatly the course of the affection. Flexner's * experiments with hexamethylenamin showed that it seemed to have some immunizing effect on monkeys, but that after infection had occurred it had no effect. Still, on the supposition that monkeys and children may not be affected in just the same way, and as the drug in moderation seems to be harmless, the early use of hexamethylenamin seems our best chance. Occasionally cases occur which suggest that it may have been useful. For example, in July, 1911, three children in one family were affected at intervals of three or four days with fever, prostration and gastro-intestinal disturbance. The diagnosis of the first case was made only after the second child was in the height of her attack and before the third was affected. The first child received no hexamethylenamin, the second had a little, and the third had large doses from the beginning. The first child was severely paralyzed from the waist down, the second had weakness of the legs and back for a few months, and the third had no muscular involvement. All were equally sick. Such an observation, of course, proves nothing, but in connection with the early history of other cases that I have analyzed has made me feel that the early use of hexamethylenamin is desirable in suspected cases.

* Flexner, Simon, and Clark, Paul F.: Experimental Poliomyelitis in Monkeys, THE JOURNAL A. M. A., Feb. 25, 1911, p. 585.

TREATMENT OF THE ACUTE PHASE

Little time need be spent in discussing the general measures of rest, catharsis, light feeding and quiet, which are universally agreed on. If any criticism is to be made it is that children slightly affected are often allowed to be too active; but generally the patient is so ill at first and so tender after the attack that this matter takes care of itself.

In formulating the treatment of the acute attack and of the days following we have only to remember the pathology of the affection. It is essentially a hemorrhagic myelitis with a widely distributed accompanying meningitis. Such a condition obviously demands general quiet, freedom from excitement and activity, and recumbency for a period of days or weeks. Even in the slighter cases the lesion cannot be immediately recovered from, and the observations on monkeys have taught us that some of the muscular paralysis is due to an edema in the cord accompanying the hemorrhagic process. The need of the measures spoken of must be self-evident, and my own practice has been to secure for even the slightest cases quiet for at least two or three weeks, and for the severer cases quiet until all tenderness has disappeared.

It must be said, however, that comparison of different treatments must be made with care, for no two cases are alike, the dose of poison or the individual resistance varies enormously, and the condition in the acute attack gives no very accurate means of telling what the ultimate outcome will be, except that the general conclusion may be formulated that on the whole very severe attacks are most often accompanied by severe paralysis and slighter attacks by more moderate and slighter forms.[1]

Two hundred and thirty-four cases of paralysis occurring in Massachusetts in 1907 were investigated in 1911 by a competent orthopedic surgeon.[2] Seeing as many of the patients as could be traced, he found that 25 per cent. had wholly recovered without regard to whether they had or had not been treated, and, moreover, that the analysis of the early history of these cases showed them to be average cases and that they could not in the early stage have been picked as cases in which the patients were especially likely to recover.

All of this goes to confirm the statement that the outcome of the case is not wholly determined by the treatment received, a point which parents are slow to grasp.

TREATMENT OF THE TENDER CONVALESCENT PHASE

Any rigid division of the disease into stages is misleading and out of accord with facts, because one stage melts into another so gradually that a dividing line is impossible. Still there are different aspects of the affection, which have been spoken of here as phases.

1. Lovett, Robert W., and Lucas, W. P.: Infantile Paralysis, a Study of 635 Cases, THE JOURNAL A. M. A., Nov. 14, 1908, p. 1677.
2. Wood, B. E.: Boston Med. and Surg. Jour., Oct. 5, 1911.

Following the subsidence of fever the patient is generally paralyzed in one or more limbs, tender to the touch and on motion, somewhat prostrated, and generally shows the results of a general infection. The latter, however, is soon recovered from, although in the severer cases the patient is generally below par for some time. This is the period when spontaneous improvement will begin, and the family may be assured that improvement which they can see will occur in a few weeks. It is generally difficult to make the family and the practitioner who has not had much experience in the disease understand that the best treatment at this stage is to let the patient alone except for preventing contraction of the Achilles tendon, which may occur to a troublesome extent in the first two or three weeks.

So long as tenderness lasts it may be accepted as evidence of the existence of some degree of active myelitis around the motor and especially the sensory centers of the cord. Under these condition it seems unphysiologic to stimulate by passive movements, massage or electricity the peripheral parts connected with those centers. Yet the early use of these measures is a common practice.

The tenderness may last from two to three months after the attack, and a perfectly inactive treatment is hard to pursue when the family has heard of the wonders of electricity and massage, and is anxious not to lose time. But so long as the tenderness lasts, the best practice is to let the patient alone so far as active treatment goes. Frequent changes of position are desirable, and there is no objection to the sitting position for the convalescent, to outdoor air, or to immersion in a warm bath with whatever active movement under water may be accomplished without discomfort.

There is no danger that the joints will stiffen, and in the first weeks the only troublesome complication to be feared, as has been said, is contraction of the Achilles tendon. If this is occurring it is justifiable to stretch the posterior muscles gently with the hand, even at the risk of causing some discomfort, rather than to allow a permanent contraction to occur. The easiest means of preventing the contraction is from the beginning to have the soles of the feet rest against a box covered with a blanket placed against the bottom of the bed, which holds the feet at a right angle to the legs. Unless this is done the weight of the bed-clothes and the dropped position of the unsupported foot in sitting will in most cases cause some degree of talipes equinus. The frequency with which this complication is seen in practice shows that it is not an imaginary danger.

TREATMENT OF THE CONVALESCENT PHASE AFTER TENDERNESS HAS GONE

With the disappearance of tenderness the time for active treatment has begun, and the sooner the patient is put on his feet and resumes activity the better. It seems probable on general principles that in cases of any degree of severity, even if tenderness disappears earlier than four weeks, active treatment should not be begun before that time, while some authorities would forbid active measures before the expiration of six weeks from the onset. In my experience, however, I have seen nothing but good come from instituting treatment at four weeks when the disappearance of tenderness has warranted it. The general condition of the patient, moreover, must not be neglected, as many of the children at this time have not wholly recovered from the effects of the infection, and are anemic, poorly, and easily fatigued.

The therapeutic measures at our disposal are massage, electricity and muscle training.

Massage may be expected to improve the local and general circulation, to facilitate the flow of lymph, and to retard muscular deterioration. It cannot, however, be expected to facilitate the transmission of a motor impulse from the brain to the affected or weakened muscle. In estimating its value in the treatment we must remember that it is only a part of the treatment.

Electricity is less highly regarded in the treatment than was formerly the case. The unintelligent use of electricity month after month to the exclusion of other measures has been one of the handicaps which has stood in the way of the best progress in many cases. It is quite possible that it may improve the muscular condition, and it may induce the contraction of muscles which cannot be reached otherwise, but its value has apparently been overrated, and in my own practice I have seen no convincing evidence that its use was beneficial, and I have preferred to concentrate on the measures which I could see were of distinct use.

Muscle training is apparently the most useful of the three therapeutic measures mentioned, apparently because it rests on the best physiologic basis. This is what happened before the attack, and what we want to have happen again, when the child desires to contract a certain muscle, to perform a certain motion: An impulse to move the muscle started from the motor area in the brain, and descended along the spinal cord motor-tracts to the spinal center controlling that muscle, where it was modified and distributed to the proper motor nerves and sent along them to cause muscular contraction. By the disease, certain spinal motor centers were destroyed, and can therefore no longer act to distribute motor impulses to their muscles. But such spinal centers and their connections are complicated affairs, and every muscle is connected with several centers, every center sends impulses to more than one muscle, and, moreover, the connections between the spinal centers are many. Unless, therefore, the destruction in the cord has been a very extensive one it is likely that some of the motor centers in any one region will have escaped destruction, and that it may be possible to establish new connections around the destroyed centers. If a railway wreck occurs on the main line and the track is blocked it is often possible to send trains by means of a branch line around the obstruction, so that service between the terminals is maintained. In the same way after a wreck of certain nerve centers it may be possible by a modified route to send a motor impulse from brain to muscle. On this principle of establishing new connections and opening new paths rests most of the claim of muscle training, but not entirely on this, because on account of the local edema of the cord accompanying the infiltration and hemorrhagic process certain motor centers are temporarily put out of order but not destroyed. Muscle training aids these to recover function.

Muscle training in its most obvious form consists in aiding the patient to perform a certain movement with the hope of stimulating an impulse from the brain to the weakened or paralyzed muscles. If, for instance, the dorsal flexors of the foot do not act, through being stretched, weakened, partly paralyzed or wholly paralyzed, in the exercise the foot is dorsally flexed with the hand and the patient directed to assist. If there is any muscular response less and less aid is given to the muscle by the hand, and it may be that in this way it can be trained to perform its function. A detailed account of

the exercises for the different groups of muscles has been given by Wright.[3]

In my personal experience the success of muscle training and other measures has been greater in the legs than in the arms.

Another and equally useful form of muscle training consists in getting the patient on his feet at the earliest possible moment in order to call forth the instinctive muscular actions induced by the efforts to walk and balance. Even before it is possible to make much progress in this way, sitting is useful for the spinal and trunk muscles.

THE USE OF APPARATUS AND BRACES

Many patients at the beginning are unable to stand without apparatus, because, for example, the knees flex on account of weakness or paralysis of the quadriceps muscle. In these cases a caliper splint should be applied to hold the knees straight.[4] If the feet roll in or out varus or valgus braces should be applied. If the spine or abdomen is involved, a corset or jacket should be worn. Crutches are at first necessary in cases of paralysis of both legs. In other words, if the standing position induces malposition, such malposition must be corrected, because nothing but harm can come of it.

The fear that the early use of apparatus will promote muscular atrophy is wholly unreasonable, because nothing is so bad as disuse, and braces should mean the upright position, and the upright position means more muscular activity. The best way to avoid wearing a brace permanently is to put it on early and keep it on as long as necessary. For a growing child to walk about with a malposition is to bid for a permanent deformity.

DEFORMITY

If fixed deformity exists, it must be removed before treatment of any sort can be satisfactory. By fixed deformity is meant a condition in which the functions of a joint are limited, in which its arc is restricted. If a child sits with the foot dropped and it can be normally flexed by the hand to its normal extent it is merely a malposition; if it cannot be brought to a right angle it is a deformity. The difference is an important practical one.

The common and most troublesome deformities in neglected cases are fixed contractions of the feet in varus, valgus or equinus, flexion of the knees and contraction of the fascia lata, causing contraction of the thighs on the body. These deformities are easily remedied by stretching or cutting, and this is an essential preliminary to other mechanical or operative treatment. One should, however, be careful about cutting the Achilles tendon without some further operation when the anterior leg muscles are paralyzed, as an unsatisfactory limp and powerless foot may result.

The most troublesome deformity of all is lateral curvature of the spine, which occurs to some degree in most cases in which the shoulder, back or respiratory muscles are involved, which should always be watched for. Many errors would be avoided if every child with infantile paralysis were stripped and examined for scoliosis. It is singularly resistant to treatment, and when it affects the cervicodorsal region is practically not to be controlled. Lower down in the spine it may be greatly benefited by proper jackets and exercises. But such jackets must be applied early and worn persistently, because the cause, the unilateral muscular paralysis, is always present to aggravate the condition.

OPERATIVE TREATMENT

It is my purpose in this paper to give only the briefest possible outline of operative treatment. Operations are undertaken:

1. To correct fixed deformity.
2. To improve muscular function.
3. To secure stability of useless joints.

1. The correction of fixed deformity has already been dealt with.

2. The improvement of muscular function is accomplished by the transference of the tendinous end of a sound muscle to the place of insertion of a paralyzed muscle, so that its function is substituted for the lost function. The operation is useful in carefully selected cases, and must rest on careful anatomic study. The technic is of great importance, and has been fully discussed.[5]

The operation should not be performed until two or three years after the acute attack, and is not suitable for very young children. The passage of a considerable length of time since the attack is not a barrier to operation, and it is useful in adults.

The most important recent additions to our knowledge are that insertion into bone or periosteum (preferably the former) is preferable to insertion into tendons, and that silk elongation of the tendon may be performed with impunity and makes the operation much more widely applicable. Good function in the operated limb cannot be expected under six months.

3. The stability of flail and useless joints may be secured in several ways.

Arthrodesis, or the production of artificial ankylosis, in such a joint is obtained by opening the joint and removing the articular cartilage. In the ankle it has been most used, and under proper conditions furnishes a stiff ankle so that the patient need not wear a brace. It is, however, not to be done unreservedly. There is no use in stiffening an ankle unless the knee is good and can bear weight, and it is not to be done in children under 12, or a serious deformity may follow, incident to the growth of the foot, which may cause a bad varus. Arthrodesis of the knee should never be attempted in children on account of the danger of interfering with epiphyseal growth, and most adults prefer a brace which can be unlocked for bending when sitting down, to a permanently stiff leg. At the hip it is an operation little used, and chiefly to be considered when the hip is dislocated and can be reduced. In the shoulder it is sometimes useful.

Silk ligaments at the anterior aspect of the ankle are much to be preferred to arthrodesis in cases of flail ankle, because they do not cause a stiff joint, but allow dorsal flexion while they check plantar flexion or dropping of the foot; they do not cause bony distortion, and they may be safely used in middle childhood. Just as the silk elongation of a muscle is coated with fibrous tissue and becomes a tendon, so does silk inserted to check joint motion become coated with fibrous tissue to form a ligament.

In the technic one or two matters are of much importance. The crest of the tibia above the ankle is exposed, periosteum incised and turned back, and a hole drilled

3. Wright: Muscle Training in the Treatment of Infantile Paralysis, Boston Med. and Surg. Jour., Oct. 24, 1912.

4. Methods of Treatment in Infantile Paralysis, Department of Orthopedic Surgery, Harvard Medical School, Boston Med. and Surg. Jour., June 30, 1910.

5. Lange, F.: The Orthopedic Treatment of Infantile Paralysis, Am. Jour. Orthop. Surg., August, 1910; Ergebnisse der Chirurgie und Pathologie, Payr and Küttner, Berlin, 1911, ii, 1.

in the bone. One of the bones in the tarsus at the inner or outer side of the foot, or both, as the indication for support determines, is drilled in the same way, and one or two strands of heavy silk are passed through the tibial hole under the annular ligament, through the tarsal hole, and tied. The knot must come in the upper wound, as otherwise it is likely to chafe through from pressure of the boot. At least three months' support is necessary, and probably more.

The application of silk ligaments to other joints has not been fully worked out. In my own practice I have not done an arthrodesis of the ankle for dropped foot for several years, because the results of the silk ligament operation are so much more satisfactory. Other operations for fixation are advocated.[6]

In cases of paralytic calcaneus deformity, the Whitman operation[7] consists in removing the astragalus and setting the foot back in relation to the leg. After the operation the foot should be placed in the equinus position.

CONCLUSION

The foregoing seems to me to be a summary of the modern treatment of infantile paralysis, colored of course by my own personal experience. I think that those of us who live in communities which have been severely affected become every year more hopeful and more persistent in our efforts. There seems no time limit as to improvement, and many of the most neglected cases seem the most striking when they come to proper treatment. I have merely tried to show that a treatment based on our more recent knowledge of the disease differs in some respects from our former ideas, which were based on smaller experience and a less exact pathology.

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THE MECHANISM OF RECOVERY IN PNEUMONIA

WITH SPECIAL REFERENCE TO THE CRISIS

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In many acute infectious diseases convalescence often sets in abruptly. Within a few hours the temperature may fall several degrees, and forthwith there is a marked improvement in all the symptoms. This sudden change for the better is known as the crisis. Pneumonia, erysipelas, measles, the varioloid diseases and recurrent fever are diseases in which recovery or improvement frequently occurs by crisis.

In lobar pneumonia the crisis is a most characteristic phenomenon. Here it may take place with a suddenness without parallel in other disorders. In somewhat more than one-half of the cases "after the symptoms have lasted some five to eight days, less frequently a longer or shorter time, while at a constant height or even while increasing in severity, there is a rapid fall in the temperature with copious perspiration and rapid improvement in all the symptoms."

This abrupt change "from a state of extreme hazard and distress to one of safety and comfort" has excited interest and speculation in regard to its nature and mechanism since long ago. The early explanations are connected with the doctrine of critical days, a pet dogma of the galenic system, and appear to us as fanciful and of only historical interest. To attempt a brief review and summary of what is actually known of the reactions that occur at the time of crisis in pneumonia may be of interest, especially as it necessarily involves some discussion of recent advances in investigation concerning the specific cause and treatment of this dreaded disease.

MECHANISM OF HEALING AND IMMUNITY IN PNEUMOCOCCUS INFECTION

Soon after the discovery by Fraenkel and others that typical lobar pneumonia is caused by the micro-organism now commonly called the pneumococcus, G. and F. Klemperer[1] demonstrated that one can immunize animals against pneumococci, and that the blood-serum of such animals may have preventive and even curative powers with respect to pneumococcus infection. This is the starting-point of investigations of an immunologic nature the object of which has been to obtain an insight into the nature of the crisis and the cure of pneumonia.

The Klemperers explained the crisis as the result of a rapid detoxication due to the antidotal action of substances similar to diphtheria antitoxin, but as no one has succeeded in showing that pneumococci produce true toxins with antigenic powers like diphtheria and tetanus toxins, this idea that the cure of pneumonia is the effect of a direct antitoxic action remains without experimental support.

The antitoxic hypothesis was abandoned, and eventually the attention of investigators became focused on reactions which are antimicrobic rather than antitoxic; that is, which cause destruction of the invading microbes and thereby put an end to the processes that are responsible for the disturbances caused by the infection. This destruction is accomplished in some cases principally by direct solution or lysis and in other cases principally by intracellular, that is, phagocytic action, both being essentially digestive processes. In certain infections, notably the streptococcal and the pneumococcal, the phagocytic reaction appears to predominate.

In 1897 Mennes[2] discovered that the serum of animals immunized against pneumococci contain substances that in some way promote phagocytosis of virulent pneumococci which resist the phagocytes in the presence of normal serum. This very important observation did not attract the notice it merited, and it was not until some years later when Wright[3] described the opsonins and when Neufeld[4] quite independently discovered the bacteriotropins that the study of the mechanism of healing and immunity in pneumonia received a new impetus which still is effective and fruitful.

Wright gave the name of "opsonins" to substances in normal serum that attach themselves to bacteria and thereby render them susceptible to phagocytosis, and Neufeld applied the term "bacteriotropins" to substances with like action in the serum of immunized animals. There appears to be no fundamental difference between the opsonins and the bacteriotropins. Both are specific; that is to say, normal serum contains a variety of opsonic substances, each of which is specific

6. Puttl: Bull. d. Sc. Méd., lxxxiii, Series 8, 1912, xii. Bartow and Plummer: Buffalo Med. Jour., January, 1912.
7. Whitman: Treatise on Orthopedic Surgery, ed. 4, Lea and Febiger, Philadelphia.

1. Klemperer, G. and F.: Berl. klin. Wchnschr., 1891, xxviii, 833.
2. Mennes: Ztschr. f. Hyg. u. Infektionskr., 1897, xxv, 413.
3. Wright and Douglas: Proc. Roy. Soc., 1903, lxxii, 357; ibid., 1904, lxxiii 128.
4. Neufeld and Rimpau: Deutsch. med. Wchnschr., 1904, xxx, 1458.

for a given bacterium, and in immune serum the specific opsonic substance for the particular bacterium or cell with which immunization has been produced is developed in high degree. Both owe their full effect to the interaction of two substances, one of which is destroyed on heating the serum to 58 C. (136.4 F.) for thirty minutes, while the other substance remains unaffected. The latter is opsonic by itself, but its action is enhanced by the heat-sensitive element, and it is the heat-resistant element which is produced anew and specifically by experimental immunization or as the outcome of spontaneous infections.

Whether we call these substances opsonins or bacteriotropins is perhaps a matter of taste, but in English literature custom favors the use of opsonins, although writers occasionally, and incorrectly, speak of bacteriotropins as different and distinct from opsonins.

While pneumococci of a low grade of virulence, and hence susceptible to the opsonic action of normal serum, in the test-tube experiment grow freely in normal serum and also in suspensions of washed leukocytes in salt solution, they are destroyed within the leukocytes in mixtures of washed leukocytes and fresh serum. This is readily demonstrable by means of plate cultures made at proper intervals with fixed quantities of such mixtures, and, other things being equal, the greater the number of leukocytes the greater the destruction of pneumococci which undergo solution or digestion within the cells.

Highly virulent strains of pneumococci resist phagocytosis under these circumstances apparently by virtue of containing a peculiar substance, discovered by Rosenow[5] and called virulin, which being readily soluble in salt solution may be extracted from the bodies of such pneumococci by soaking them in the solution.

As stated, however, immune serum may subject virulent pneumococci to phagocytosis, and such serum may protect susceptible animals against multiples of the fatal dose of pneumococci and even cure an established pneumococcus infection. Here an important reservation is to be noted: Neufeld[6] and others find that not all cultures of pneumococci respond in this way to the action of an immune serum prepared with the aid of a particular strain. Some strains will resist while others do not. Hence pneumococci as they exist in nature are not all alike in their biologic reactions, but fall into separate groups.

The recent work of Rosenow[7] shows that these groups do not necessarily represent absolutely fixed types, as they are subject under experimental conditions to radical changes and intermutations. The occurrence, however, under natural conditions of groups of pneumococci that for the time being at least have nothing in common so far as their reactions of immunity are concerned, is of the greatest interest because of its bearing on specific therapy and other problems of pneumonia.

Dochez and Gillespie[8] find that the pneumococci from cases of pneumonia form four distinct groups according to their immunity reactions. The agglutination test gives the same grouping as the much more difficult protection test, and Cole,[9] using agglutination to determine promptly to which group the pneumococcus in the individual case belongs, has obtained really promising results with the strictly specific serum. At present this is the most rational and hopeful basis we have for the development of an effective serum treatment of pneumonia.

The fact that pneumococci form separate groups is possibly of interest also in connection with repeated attacks of pneumonia at short intervals. These are now ascribed to an inadequate or too brief an immunity, but they may be caused at least in some instances by infections with strains of pneumococci that are not subject to the same immunity.

Returning now to the crisis and cure of pneumonia, we have to consider especially three factors, namely, the pneumococci, the leukocytes and the opsonic and protective elements in the blood.

VIRULENCE OF PNEUMOCOCCUS AT CRISIS

Is there a sudden loss of virulence in the infecting pneumococcus at the time of crisis?

Fraenkel and others concluded from results of inoculation of animals with pneumonic sputum, or with pneumococci isolated from the blood of animals inoculated with pneumonic sputum, that there is a definite fall in virulence shortly after the crisis, and it has been suggested that in cases in which there is recovery by lysis, the loss of virulence is more gradual and like the fall of the temperature in such cases. The methods used by these experimenters are not quite satisfactory. Thus the number of pneumococci in the sputum varies from time to time and especially after crisis. It is consequently not surprising that others obtained contrary results.

Graham[10] studied the phagocytability of pneumococci isolated directly from the sputum of pneumonic patients, but obtained no signs of any increase or decrease of virulence of the sputum organisms in the course of the disease. Theoretically, this method would seem serviceable, because avirulent pneumococci are readily phagocytable, while virulent ones resist phagocytosis in the presence of normal human serum. There is, of course, the possibility that even a brief sojourn in the sputum may reduce the virulence, and Leutscher[11] did find that the saliva has an attenuating influence on the pneumococcus. Leutscher made elaborate tests on animals of the virulence of pneumococci from the sputum in pneumonia, but did not obtain evidence of any sudden drop that might account for the crisis. His results indicate that so long as pneumococci are coughed up from the lungs they retain their original virulence.

We may conclude then that so far as the results of the work on pneumococcus in the sputum go, there is no evidence that the crisis in pneumonia is due to a crisis in virulence.

Nor is there any evidence that the pneumococci in the blood and in the lungs in pneumonia suddenly lose virulence at the time of crisis; whenever isolated during life from these sources they appear to have a high degree of virulence.

The indications are that pneumococci occur in the circulating blood in every case of lobar pneumonia, at least in the earlier stages in the cases in which there is recovery, and in increasing numbers in the cases that proceed rapidly to a fatal end. At the time of crisis the blood is sterile in the majority of the cases, but in cases with complications and delayed resolution, blood-

5. Rosenow: Jour. Infect. Dis., 1907, iv, 285.
6. Neufeld: Arb. a. d. k. Gesundheitsamt, 1910, xxxiv, 293.
7. Rosenow: Tr. Chicago Path. Soc., 1913, ix, 61.
8. Dochez, A. R., and Gillespie, L. J.: A Biologic Classification of Pneumococci by Means of Immunity Reactions, THE JOURNAL A. M. A., Sept. 6, 1913, p. 727.
9. Cole, Rufus: Treatment of Pneumonia by Means of Specific Serums, THE JOURNAL A. M. A., Aug. 30, 1913, p. 663.
10. Graham: Jour. Infect. Dis., 1908, v, 273.
11. Leutscher: Jour. Infect. Dis., 1911, ix, 287.

cultures not infrequently yield pneumococci that are virulent; only occasionally are pneumococci found in the blood after crisis for a short time in cases running a normal course.

Studying the exudate as obtained by puncture of the lung during life, Rosenow[12] found disintegrating pneumococci both within and outside the leukocytes, especially in the latter stages of the attack. In the early stages living pneumococci were always present, and in fatal cases in large numbers throughout the attack. In the patients who recovered by crisis, the number of cocci fell, sometimes abruptly, as crisis was approached, and when the blood had become sterile the exudate was also sterile.

All things considered, we must conclude that crisis does not mark a point at which the invading pneumococci suddenly become avirulent, but rather the point at which a more or less complete and rapid destruction of the organisms is accomplished.

THE LEUKOCYTES IN PNEUMONIA

That the leukocytes constitute an integral factor in the defensive mechanism of the body against the pneumococcus must be accepted as settled. Their behavior in pneumonia with regard to the crisis is significant. In favorable cases a marked leukocytosis appears early and disappears with the crisis, the fall being a little later than the fall in the temperature, especially when there is delay in resolution. Clinicians see in a falling leukocytosis without crisis, and in the absence of leukocytosis, a bad omen and indications of failing resistance and overwhelming infection.

The phagocytic and destructive powers of leukocytes appear to vary under different conditions. In certain acute infections with leukocytosis there is a non-specific increase in phagocytic activity when the outlook seems favorable, perhaps because of a preponderance of young cells. In pneumonia the leukocytes may be more resistant to heat than normally, have more attraction for pneumococci, and even take up pneumococci that rebuff normal leukocytes (Rosenow). Tunnicliff[13] found that in mild cases of pneumonia the leukocytic activity as a rule is above normal, while in severe cases it may be subnormal at the height of the disturbance, rising above normal as improvement sets in.[14]

Even if the leukocytic activity remained unchanged, there still would be a marked increase in the destructive power of the blood, other things being equal, because of the great increase in the number of the leukocytes.

As the pneumonic exudate begins to disintegrate, intraleukocytic ferments and other substances are set free that in all probability are pneumococcidal and no doubt contribute to the destruction of the free pneumococci, many of which, when examined in smears, seem to be in process of solution. But crisis can hardly be wholly dependent on resolution, because, while they usually concur, the crisis may precede resolution.

We observe, then, that the acme in number as well as in activity of the leukocytes in pneumonia appears to bear such relation to the crisis that it is logical to assume that they are directly concerned in its production.

12. Rosenow: Jour. Infect. Dis., 1911, viii, 500.
13. Tunnicliff: Jour. Infect. Dis., 1911, viii, 302.
14. Here it may be noted too that Hiss and Zinsser (Jour. Med. Research, 1908, xix, 322), found that extracts of leukocytes of immune animals seemed to possess greater curative powers than extracts of leukocytes of normal animals. Concerning increased phagocytic activity of leukocytes in acute infectious diseases see also Schaefer-Hieber (Deutsch. Arch. f. klin. Med., 1913, cxii, 14).

THE ANTIBODIES IN PNEUMONIA

Crisis in most cases of pneumonia occurs between the fifth and tenth days of the attack, which usually is held to begin with the chill. Undoubtedly, the infection actually begins a little earlier. Whenever substances calling forth specific antibodies are introduced into the body in moderate quantities, it requires a few days before the antibodies accumulate in any considerable amount in the blood, the high points being reached about the tenth or twelfth day, so that the time when the crisis occurs corresponds closely to the high point of the antibody curve in general.

Let us now briefly review what is known of antibody formation in pneumonia in order to learn what relation this may bear to crisis.

Using a readily phagocytable pneumococcus, Wolf[15] found that in typical pneumonia the specific opsonin as measured by means of the opsonic index is subnormal in amount at first, but rises above normal as the crisis is passed, reaching its height soon afterward, whereupon there seems to be a speedy return to normal. In fatal cases the index may drop lower and lower. Boettcher[16] also found that as a rule the opsonic power of the serum was higher the nearer the crisis.

Testing the combined effect on pneumococci of serum and leukocytes by means of the plate method, Eggers[17] determined that in most cases of lobar pneumonia the antipneumococcal, that is, the opsonic, power of the serum increases, being as a rule greatest at or just after the onset of crisis and lasting a variable period afterward. In the cases in which this increase did not occur the course was irregular or the termination fatal.

Still others have made observations to the same general effect; but as increase in opsonin was demonstrable with respect only to non-virulent or feebly virulent pneumococci, highly virulent pneumococci such as are present in the blood in pneumonia apparently not being affected by the serum at all, doubt was expressed whether the results of the estimation of opsonin really were as significant as they at first sight would appear to be.[18] It was urged that if phagocytosis plays a decisive rôle in the cure of pneumonia, then surely pneumonic serum would be actively opsonic for virulent pneumococci. Just recently it has been found that this is so. The trouble with the early experiments seems to have been that the tests were not made with the pneumococcus infecting the patient whose serum was used, as Clough[19] finds that soon after crisis as well as during lysis the pneumonic serum may be actively opsonic for the homologous organism in a highly virulent state, and such activity may be limited quite strictly to the homologous strain, illustrating well the peculiar group limitations of the antipneumococcal reactions.

The most striking evidence, however, of the increase in the antipneumococcal power in recovery from pneumonia is furnished by the action of the serum in protecting animals against homologous pneumococci of extreme virulence.[20] We now have the results of several series of faultless experiments showing that there is a definite clean-cut rise in the protective power of the serum coincident with crisis and observable also during lysis. From 0.001 to 0.2 c.c. of postcritical serum may

15. Wolf: Jour. Infect. Dis., 1906, iii, 731.
16. Boettcher: Deutsch. Arch. f. klin. Med., 1909, xcviii, 93.
17. Eggers: Jour. Infect. Dis., 1912, x, 48.
18. Strouse: Jour. Exper. Med., 1911, xiv, 109.
19. Clough: Bull. Johns Hopkins Hosp., 1913, xxiv, 295.
20. Neufeld: Ztschr. f. Immunitätsforsch., 1910, iii, 159. Dochez: Jour. Exper. Med., 1912, xvii, 665. Clough: See Footnote 19.

protect against a thousand—yes, even a million—times the single fatal dose of homologous pneumococci, but even so highly potent a serum quickly reaches the limit below which its protection is ineffective. A certain amount of antisubstances in proportion to the weight of the animal is essential, and Neufeld[20] suggests that in pneumonia the antibodies formed remain powerless until they reach this necessary concentration, whereupon the pneumococci are destroyed quickly by the phagocytes, and crisis results. The protective action of pneumonic serum is due to the same antisubstances as in the serum of immunized animals, namely, substances that promote phagocytosis, and Clough found that the protective power strictly parallels the power to render virulent pneumococci phagocytable.

Another important change in the serum at the time of crisis is the development of the power to digest pneumococcus proteins described by Dick.[21] The serum now contains substances that split up these proteins, producing digestive products which are easily detected by means of appropriate tests. Rosenow[22] has shown that the serum of immune animals has an increased proteolytic power with respect to pneumococcus proteins, and the results of his experiments indicate that recovery from pneumococcus infection is associated with the breaking up of cleavage products of pneumococci beyond toxic stage at which such products are toxic.

According to the work of Vaughan,[23] protein digestive products may cause many of the general symptoms present in pneumonia, including the fever. The intensification of the symptoms as crisis occurs, as well as the symptoms peculiar to the crisis itself, may perhaps be caused by the large quantity of protein poisons set free at this time and rapidly broken up into non-toxic products.[24]

We reach the important conclusion that the crisis coincides with the height of a wave-like increase of antipneumococcal substances in the blood. We find that such is the case as the result of various tests and measurements, of which most weight must be given to the demonstration of the protective and opsonic action of postcritical serum with respect to its homologous virulent pneumococcus.

An increase in antipneumococcal substances occurs also in cases in which recovery occurs by lysis, but in cases that proceed rapidly to a fatal ending no such increase in free antisubstances seems to be demonstrable.

SUMMARY

The cure of pneumonia results from the destruction of the pneumococci in the lungs and in the blood. This is accomplished by phagocytosis and also by extracellular digestive processes.

The predominating general defensive reactions in pneumonia are leukocytosis and the production of antibodies for pneumococci, of which the opsonins are best known; and these appear to be specific for the group to which the infecting pneumococcus belongs.

In rapidly fatal cases the defensive reactions are inadequate to destroy the pneumococci which persist and multiply in the lungs and in the blood, and free antibodies have not been demonstrated in the blood.

In favorable cases the pneumococci are destroyed more or less rapidly when the antipneumococcal reactions reach a certain height. We may assume that lysis results when the destruction takes place more gradually. Crisis is the effect of prompt destruction. In both cases, but demonstrated more clearly in crisis, there is an excess of free antibodies in the blood.

Memorial Institute for Infectious Diseases, 1743 West Harrison Street.

21. Dick: Jour. Infect. Dis., 1912, x, 383.
22. Rosenow: Jour. Infect. Dis., 1912, xi, 94.
23. Vaughan: Protein Split Products in Relation to Immunity and Disease, 1913.
24. At this point it is of interest to note the explanation of crisis advanced by Frank (De Curandi Hominum Morbis, Epitome, etc., 1810), one hundred years ago: "If the matter of the disease be expelled by some one convenient outlet, in the skin, kidneys, pulse or blood-vessels, the crisis is simple; if by several of these at the same time it is compound; if the whole be carried off at once it is perfect. If it be carried off at different times it is a lysis, or resolution."

THE TREATMENT OF THE PNEUMONIAS*

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In a study of the treatment of pneumonia it will be well at the outset to remind ourselves of the meaning of the term. Not all writers and not all clinicians mean by pneumonia merely the blood infection which localizes its lesions in the lung in the form of lobar or fibrinous pneumonia. A few remember the fact that there are many types of infection other than that of the pneumococcus capable of producing the picture of lobar pneumonia. Still fewer recall the ever-increasing frequency of what we may term, for sake of accuracy of description, bronchocatarrhal pneumonia. The very few who do indeed make these discriminations avoid speaking of the "treatment of pneumonia," and are never found including under the one term conditions as different as darkness from light.

PNEUMONIA IN THE MEDICAL WARDS OF THE PHILADELPHIA GENERAL HOSPITAL, 1911-1913

Total number of cases*	596
Total number of recoveries	232
Total number of deaths	364
Total percentage of recoveries (varying from 0 to 53 per cent.) on the various medical services (representing the various methods of treatment)	38.5
Total percentage of deaths (varying from 100 to 47 per cent.)	61.5
Number of cases which ran a low, irregular febrile course (not over 100 F.; often subnormal or normal throughout), with rapid pulse	393
Number of cases typically and constantly febrile (above 100 F.), and frankly suggestive of croupous pneumonia	203

* This total does not include the pneumonia cases in the Children's Hospital or those in the surgical wards, nor does it deal with cases of so-called hypostatic pneumonia. Practically every case in the series was treated in cold fresh air, very many of the patients having been placed outdoors on the bridges constructed for the purpose. Perhaps the majority of the cases occurred in alcoholic subjects; not a few were in the course of acute alcoholism.

Without dwelling on the fact that either fibrinous or bronchocatarrhal pneumonia may be caused by any one or more than one (a mixed infection) of the common infecting organisms, I wish simply to point to the need of determining very early just which form of involvement the physician has in hand. The chart of temperature, pulse, and respiration usually goes far toward making the differentiation. The history of the case, especially the former state of vigor and health, will just as frequently furnish the needed suggestion. As a rule, the physical examination, not of the lungs, but of the whole patient, will make the diagnosis certain; and, as the outcome of the case may easily be dependent on just this certainty, it behooves us to lay hold on it and avoid having to face the correct diagnosis at the necropsy-

* Read before the Philadelphia County Medical Society, Nov. 12, 1913.

table, or a little later still, when the lung tissue is placed under the microscope.

In the first place, by lobar or fibrinous pneumonia I think that we all mean the clinical picture that opens suddenly, often in a vigorous, healthy person (though many times in a tired, overfed one), with a chill, vomiting, an aching back and a high temperature. The pathologic stages customarily run are congestion, red hepatization, gray hepatization and finally resolution, or some catastrophe. The clinical picture comprises a high constant temperature, a full, fairly slow hypertension pulse, an overworking but strong heart, a progression from the signs of congestion to those of consolidation of one or more lobes of the lung, rusty sputum and a febrile course of from seven to nine days, terminated by crisis, with recovery in approximately 75 per cent. of instances.

Over against this picture there is another equally clean-cut and striking — that of bronchocatarrhal pneumonia. The patient is usually an asthenic person before and after the onset of the infection. With few exceptions, perhaps none, he or she has a definite bronchitis at the time of, and probably directly causative of, the onset. Certain diseases, always characterized by a bron-

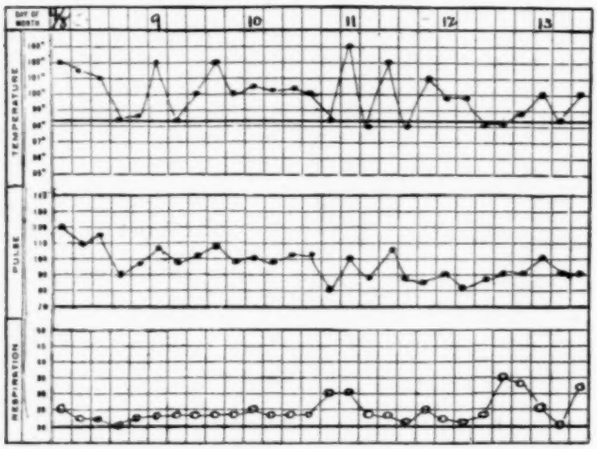

Chart 1.—Ordinary instance and customary appearance of chart in bronchocatarrhal pneumonia.

chitis, present a definite tendency to complication by bronchocatarrhal pulmonary involvement. Among these are measles, whooping-cough, small-pox, influenza, typhoid fever and gout, or the irritation of the bronchial tree due to food poisoning which masquerades under that name. It is my belief that more "colds" and bronchocatarrhal pneumonias are to be traced to a gastro-intestinal origin and possibly to a colon bacillus infection than to any other one cause.

The pathologic picture is invariably one of bronchitis, terminal bronchiolitis, pneumonitis by extension from the bronchioles, and frequently a tendency for the adjacent foci of consolidation to run together and to involve considerable areas of lung tissue. It would seem as though all that were necessary for the development of the picture were an asthenic person, a bronchitis, and a lung the inherent vitality of whose tissues (along with all the other tissues in the body) is lowered beyond the point of successful resistance to infection and inflammation.

The clinical course is one of low, irregular temperature (sometimes subnormal throughout), usually a weak, rapid, running pulse, a respiratory rate not far above the normal line, often bloody (even rusty) sputum, a course lasting from two days to many weeks, and termination by crisis in many brief cases, but far more frequently by lysis in the customary long-drawn-out type. If the case reaches the necropsy-table it may or may not present a lung solid throughout from the coalescence of many small areas of peribronchiolar consolidation.

With equal or even greater frequency we note in the low-grade pneumonias the involvement of favorite seats of predilection. Such are the middle lobe on the right side, especially near the anterior axillary line, the areas beneath the inner angle of one or other scapula, and less frequently the one or the other pulmonary base or apex. In children usually the apex is chosen, and in them very frequently the exudate is in the main epithelial, is free from fibrin, and indicates the bronchocatarrhal type of infection.

In the foregoing contrast there are at once evident two main considerations: First, the need to remember that in the lobar or fibrinous type of pneumonia we are dealing, at least in the beginning, with a formerly, and often still, vigorous patient; while in pneumonitis of the bronchocatarrhal type we invariably encounter an asthenic, deeply toxic state in which the conservation of the vital forces is the main objective, and in which in infancy, adult years or old age, the patient will die unless these are jealously conserved. In many, if not in most respects, the treatment of the two conditions is the same. In certain essential points, however, the methods of handling must be as divergent as two opposite-traveling roads. It is because of this fact that I am emphasizing the existence of the two distinct types of pneumonia, and directing attention to the life-saving character of certain measures in the one, and their death-dealing influence in the other.

FRESH AIR

In both forms of pneumonia an abundance of fresh air is an essential. In health, the main function of the air-vesicles, which, if spread out, would cover many square feet of flat surface, is to supply oxygen to the red corpuscles of the circulating blood. For this purpose every vesicle must or should receive its full quota of pure, fresh air. The destination of the oxygen is primarily the heart; thence to the body-tissues from the crown to the toe. We have no cardiac tonic or stimulant that compares in efficiency with oxygen. In clean fresh air it is supplied in Nature's chosen proportions and in her own way. An ample supply is even more essential to the pneumonia patient, very many of whose air-vesicles are full of blood or of exudate, and out of commission as oxygen collectors and distributors. In addition, the blood is often incapable of carrying its wonted supply. The body and especially the heart need, as never before, the nourishing and stimulating influence of the oxygen from fresh air. The lungs are able to supply only a portion of the usual amount, often only a very small portion. It becomes, therefore, more and more important that all of the supply shall be pure, and unmixed with harmful ingredients. Hence the adoption of the treatment in the fresh air.

If possible, the patient should be placed bodily outdoors, *provided, and only provided, that the case is of a febrile type of fibrinous pneumonia.* I think it safe to say that exceedingly few, if any, instances are to be found of genuine fibrinous pneumonia in which the temperature curve averages as low as 100 F. I have not observed one. It will be safe, therefore, in fibrinous

pneumonia to give free rein to the use of the fresh-air treatment, cold when possible, warm when there is no other supply. Such a patient literally cannot "take cold." He can, however, be made uncomfortable in extreme weather, and should be protected by a mackintosh placed over the mattress, and by bedclothes which surround the body, and do not simply lie on it. At the foot of the bed the blankets and bed-linen should be folded up under the feet and legs, forming a kind of sleeping-bag. Hot-water bags or bricks should be applied to the feet, if these precautions fail to make them comfortable. Only the nose and mouth need to be exposed to the cold fresh air in order to insure as ample as possible a supply to the embarrassed and hungry air-vesicles and to the red corpuscles waiting for their oxygen-supply.

The patient with bronchocatarrhal pneumonitis needs the fresh air and the oxygen as seriously as does he with the fibrinous inflammation and exudate. If supplied in the form of cold air, however, to a body whose poverty in heat and vital energy is already so low that it cannot show a temperature reaction to the influence of the toxin, the result will be the opposite of that desired, and

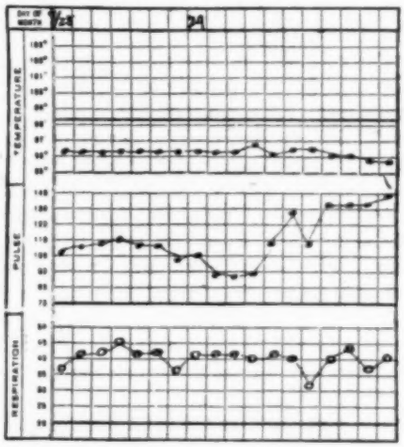

Chart 2.—Fatal case of bronchopneumonia. Base of right lung involved. Marked tubular breath-sounds, large moist râles. Chill, cough, herpes, septic tongue, severe dyspnea.

death may be the result. I do not refer only to children and to the senile, but to the patient of any age. I have, indeed, seen an old woman hurried to her end by the misguided enthusiasm of an intern, who had recently read an article of the type just now in vogue, recommending the "cold-fresh-air treatment for pneumonia," and neglecting to discriminate between the types of infection and of involvement of the lung.

It would be comparatively safe to entrust the decision between the application of cold and warm fresh air to the patient, who, in his or her choice, would practically make the diagnosis of the nature of the pneumonia. Suffice it to say that he who treats the average case of bronchocatarrhal pneumonia by the application of cold fresh air will of necessity in so doing elect to shoulder the responsibility for many an unnecessary death and for elevating the mortality of a disease whose lethal influence reaches a sufficiently high mark without assistance in that direction from the physician and nurse.

The reason is not far to seek. Examine on the necropsy-table the mucous membranes of the air-passages in a fatal case of the so-called low-grade pneumonia. From the mouth to the finest bronchioles the surface is deeply congested and inflamed and purplish or reddish-blue. Passing a current of cold air over such a surface during and in each inspiration is like refrigerating the heart's blood immediately before its supply. In addition, it actually gives pain. The application of cold air to the body of the devitalized patient who cannot be kept warm is an influence that will most certainly in many instances send him or her over the boundary between life and death that might not have been crossed, under other circumstances, until a much later day. Especially in instances of gouty bronchitis and gouty pneumonia I have studied a number of patients who seemed to retrograde with the windows open, and breathed with ease and ceased coughing the moment they were closed.

In a suitable, febrile, sthenic case of fibrinous pneumonia the respiration becomes easier, the heart-action less labored, sleep comes with less effort, and food is taken with some relish when the patient is moved even from the well-aired room to the outdoor air. Both the cerebral symptoms (delirium) and the occasional distressing intestinal paresis seem less likely to occur and more easily controlled under the outdoor regimen.

Try the same method on the asthenic patient with bronchocatarrhal pneumonia, and the pallor and cyanosis will increase instead of diminishing, the cough and expectoration will be aggravated, and the heart, which is already carrying more than it can tolerate in the way of a load, receives a new burden and the heaviest of all in the way of an added embarrassment from stasis in the lung.

When we speak of the fresh-air treatment of pneumonia, therefore, let us take pains to mention the fact to those who are eager to learn that fresh air can be furnished either cold or warm, and that, in possibly the majority of instances (bronchocatarrhal pneumonia being the more frequent type), the application of cold fresh air will certainly do harm.

FOOD

Over and above oxygen in the form of fresh air, the regulation of the food-supply forms an important item in the treatment of both types of pneumonia. In the fibrinous inflammation, with its short duration, probably the entire seven or nine days might be experienced by a well-nourished patient with no food intake whatsoever, and the outcome of the disease be more surely favorable as a consequence. There are few persons who have the moral courage to map out such a regimen. For the comfort of the family, if for nothing else, in private practice food must be administered. It becomes an object, however, to use as little as possible of the most nourishing and easily digestible form of food, at as infrequent intervals as the exigencies of the case permit. Milk forms the ideal diet, so long as tympanites remains absent. This one staple may be supplemented or replaced by simple soft foods such as junket, custard, one-minute boiled eggs and soft milk-toast. Occasionally a pneumonia patient is hungry throughout the course of the disease. Such a patient should be fed more liberally, though with judgment, until the convalescence calls for an ample supply of food.

In the bronchocatarrhal pneumonias the patient requires from the first a supporting diet, though not a grain over and above that which is actually needed for the body requirements, nor more than can be thoroughly digested by a poisoned gastro-intestinal mechanism in a deeply toxic economy. The course is likely to be a

longer one than in true fibrinous pneumonia, and provision must accordingly be made for a sustained resistance to a long insidious attack. It has been my custom in the last few years to feed a patient with bronchocatarrhal pneumonia along lines very similar to the ones employed in typhoid fever. I do not favor restriction to a milk or liquid dietary. On the contrary, I have found it helpful to prescribe approximately 2 quarts of milk in the twenty-four hours, and in addition, three times during the day, a one-minute boiled egg and some agreeable addition, such as custard, finely chopped meat, mashed potatoes, lettuce, dry toast, or a little of any simple vegetable desired. This regimen cannot safely be followed unless the rules yet to be detailed for the housekeeping of the intestinal canal are rigidly observed. With proper care, however, one will witness many a patient who enters on this disease thin and haggard and worn, emerging from it in a far better state of nourishment, and ready to enter on a real and soon a complete convalescence.

WATER

Another essential in the treatment of the pneumonias is an adequate supply of drinking-water. If sufficient is ingested from the beginning of the illness there will rarely appear the so-called toxic or typhoid state in which the tongue is dry and even fissured, the skin parched, and the patient perhaps delirious or comatose. Not less than 3 pints should be taken by the average adult patient during the twenty-four hours, and the prescription for this amount (6 glasses), or better 2 quarts (8 glasses), should be placed in black and white on the treatment-sheet. This measure is as important as is the flooding of the patient with fresh air, and will assist in attaining the same ends.

THE GASTRO-INTESTINAL TRACT

I know of no measure more certain to aid in the furnishing of a favorable prognosis in both types of pneumonia than a thorough initial intestinal sweeping by means of castor oil, and the repetition of this procedure every second day throughout the course of the disease. Under this regimen, provided a sufficient supply of clean fresh air of the proper temperature be afforded, the vast majority of patients will require no other drug treatment from start to finish. No other laxative will do the work accomplished by castor oil. I know of none that can be used with so little fear of harm. It can be given in flavored powder form (rubbed up with heavy magnesia) suspended in milk; or if necessary can be passed directly into the stomach through a fine nasal tube, the outside of which has been touched with a weakly mentholated oil. Some patients take with ease the necessary dozen flexible capsules.

I have become more and more thoroughly convinced that the great number of bronchitides find their origin in toxemias arising from the intestinal tract. Too much food, articles of food ill suited to the individual, and retention of decomposition and fermentation products in the intestinal tube from whatever source, are the causes of many "colds" and inflammations of the respiratory passages which are attributed, as a rule, to drafts, outdoor exposure, and to every other cause except the real one. Unless the process has gone too far, the symptoms begin to subside when the gastro-intestinal tract is swept and kept clean, and the offending substances (perhaps only a particle in some kink or coil of the bowel) have been removed, and when the stock and store of toxin already accumulated in the body have been lowered below the symptom-producing line. This may not be accomplished by the first purgation. Very often, however, the influence on the patient is little short of wonderful, and the whole course of the disease a different one thereafter. It is remarkable how reluctant many physicians and many laymen appear to be to empty the bowel from end to end as the initial procedure in the treatment.

Especially difficult does this lesson appear for the hospital intern. "The bowels have already moved," we are told by the doctor and layman alike, when all that has been "moved" has been the lowest rectal 6 or 8 inches, or at most the sigmoid flexure, of the intestinal tube. Other laxatives than castor oil may be used, and any one is better than none. It is well, however, to avoid those that tend to irritate kidneys that are already suffering from the same bacteriemia and toxemia that has affected the lung. Mercurials fall within this class, even calomel furnishing more of risk than of gain. Phenolphthalein has within the recent past been shown to produce albuminuria even in healthy persons. Probably magnesium citrate, next to castor oil, offers the most satisfactory means of emptying the intestinal canal with the least likelihood of damage to other structures during its elimination.

Occasionally in the middle of a pneumonia of either type, especially in the course of a surgical (ether or shock) bronchocatarrhal process, the stomach will appear paretic, and balloon with gas. At such times lavage through the stomach-tube will, as a rule, give immediate relief from both the distention and the attendant vomiting. More frequently tympanites forms a constant feature of a deeply toxic case. In such patients the high rectal tube, high asafetida enemas or suppositories, or turpentine and soapsuds enemas, will form a few of the measures that may be instituted for the relief of meteorism. Hot water or turpentine stupes may also be applied to the abdomen and will often prove more effective than the internal procedures.

Peritonitis occasionally projects itself into the midst of a pneumonic picture. It is always a serious complication and may call for surgical interference.

Far more frequently there is present the picture of an appendicitis, or of a peritonitis localized elsewhere than over the appendix, which promptly disappears with the improvement in the local pulmonary and pleural condition. Even a left-sided apical pneumonia may cause rigidity and pain in the right iliac fossa. As a consequence, it will behoove the physician and surgeon to go very slowly in the use of surgical measures. I well remember two cases, the first of a medical student, carefully studied by well-known consultants who clearly recognized the presence of both pulmonary and abdominal signs. They decided against abdominal surgery, and the patient died of suppurative peritonitis. A second case I saw with Dr. M. G. Warmuth, and decided that there was reason to operate, though a right basal pneumonia was plain. Yet the abdomen was found free from trouble, and the patient had his crisis and began his convalescence the day following the operation.

MECHANICAL AND LOCAL MEASURES

Among the non-medicinal measures valuable in the treatment of the pneumonias, as well as of all toxic states, one of the most important is the care of the skin. As far as possible this should be left free to perform its functions of elimination and respiration. It should not

be hampered by ointments, by poultices or by unnecessary coverings of any kind. Yet quite recently, in consultation with a fellow practitioner who had just taken charge of the case, I saw a little child, whose family would not permit the removal of a jacket of antiphlogistin which had nearly cost the baby its life. It had been in place for twenty-eight days, since first put on the surface of the chest by the physician then in charge. The child was apparently dead, poisoned by methyl salicylate and the gases of its own skin. The removal of the death-jacket, and immersion alternately in hot and cold water, caused the first deep inspiration witnessed in many hours. It is not the fault of the antiphlogistin fallacy that the baby is strong and well to-day. The skin should be kept clean. Good nursing will insure the sponging of the body surface with hot water morning and evening, and the daily changing of the clothing worn next the skin. In febrile fibrinous pneumonia sponging at regular intervals for high temperature will often be found restful and gratifying to the patient. The temperature of the water may be high or low (hot or cold) according to the preference of the patient. The same result is accomplished by either and

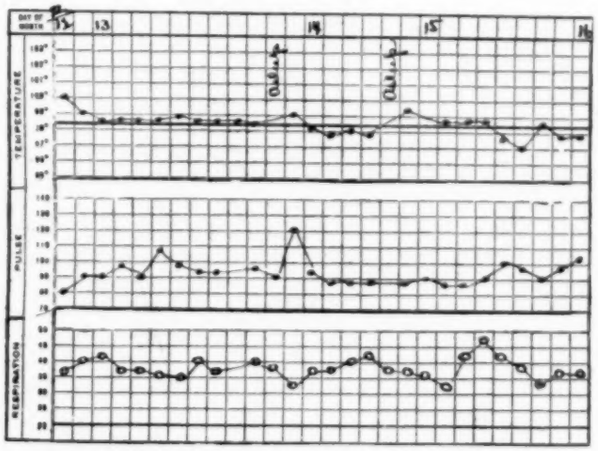

Chart 3.—Five days from the gravest stage of a fatal case of bronchocatarrhal pneumonia. Cough, dyspnea, septic tongue. Râles, tubular breath-sounds over the right lower lobe posteriorly.

both as far as the lowering of bodily temperature is concerned. The hot sponge, however, is far more restful and stimulating to the heart, and may be used for its cardiac tonic influence. In bronchocatarrhal pneumonias there will be no need of sponging to reduce the temperature. Apart from cleanliness, only with a view to vitalizing the cardiac and nervous functions will the procedure be advisable or salutary. Stupes applied to the chest for brief periods (fifteen minutes or thereabouts) at regular intervals furnish an important method of applying counterirritation. In the form either of turpentine or of hot-water applications, they often relieve pain and lessen the tendency to further congestion. Especially when there is an area of pleurisy over an inflamed lung, the stupe fills a most beneficent rôle. It should not, however, be allowed to remain in place for long at a time, or to fill the rôle of a poultice and thus accomplish harm rather than advantage. A favorite method of mine is to dry cup the chest generously over the involved portions of the lung, and then to apply over the entire chest hot stupes prepared by sprinkling turpentine directly on the steaming moist flannel. The stupe is removed in fifteen minutes, the skin wiped clean, perhaps moistened with a minimal quantity of petrolatum or oil of theobroma (cocoa-butter), and covered only by the light undergarment and night-clothing until the next stupe interval.

I have already mentioned dry cupping, either used alone or in combination with the stupes, or, in fibrinous pneumonia, with an ice-bag. Its influence extends through many layers of chest, pleura and lung, and is one of the measures employed by our fathers which we cannot afford to lose. It is not a pleasant procedure for the patient, and hence should not be overdone. One thorough dry cupping daily will furnish all the benefit that can be obtained. More constitutes an abuse of the measure, and is one of the many forms of harmful overtreatment.

Bleeding in vigorous hypertension-cases of fibrinous pneumonia has been more in vogue than it is to-day. It is of questionable value, except when the patient is cyanotic and laboring with a dilated, distended right heart, and congestion of all the organs. Used promptly at such a time, venesection may save life, or at least remove the cause of immediate distress. No definite quantity of blood can be fixed for the termination of the bleeding. The finger should be on the pulse and the physician's eye on the patient. As soon as respiratory and cardiac relief has been afforded, the cyanosis set aside, and the patient evidently enjoying a freedom from air-hunger, the procedure should be ended, whether a pint, a quart or double the amount has been abstracted. To bleed an asthenic, bronchopneumonic patient during any stage of the disease will amount practically to robbing him of that of which he stands most in need. Venesection cannot help, and may kill him.

Hot foot-baths of mustard- or turpentine-water are often of real advantage, by way of distributing the circulation of the body, and relieving the congestion of certain areas and organs. They can be used under the bedclothing in an ordinary bed by bending the knees of the patient, and, if a modern hospital bed is used, by lowering the footpiece of the bed.

Hypodermoclysis is mentioned, only to be condemned. In all types of pneumonia the heart and the vasomotor system suffer the main burden of the attack. Under such circumstances we should spare the cardiac muscle the additional burdens of a new drug-excitant and of a new overquantity of fluid in the circulation. Occasionally in an extremely low-tension case of bronchocatarrhal pneumonia a high enteroclysis with hot sodium bicarbonate solution will furnish the much-needed warmth to the body, and if administered slowly, will be absorbed, and aid in flushing out the irritating and toxic solids from the kidneys.

I have barely mentioned the use of the ice-bag, first because I am not sure that it is ever grateful to the patient, and secondly because I feel still less assured as to its value. When cerebral symptoms are present, as of headache or delirium, an ice-cap to the head may be of service. Applied to the chest, however, I can only be sure that in fibrinous pneumonia its beneficial effect on the lung is every day coming more in question; while in the low-grade bronchocatarrhal pneumonias its very principle is as contrary to the good of the patient as is the application of cold in any form.

Occasionally in a sthenic case an irritable, overworking heart can be quieted successfully by the application of an ice-bag to the precordium, now and again over a blister.

There remains to be mentioned the evacuation of a serous or purulent pleural effusion appearing as a complication of pneumonia. Serous collections should be removed as soon as recognized, by means of the needle if the physical examination leaves the question in doubt. The puncture of the lung-tissue, provided no fluid be present, never seems to result in harm, the actual beginning of resolution frequently seeming to date from the occurrence.

Loculated or free empyemas require unobstructed drainage and call for the interference of a surgeon, under local or spinal anesthesia. Far less frequent are pericardial effusions in pneumonia. These should be treated as independent conditions, and evacuated promptly in order to enable the heart to carry its load.

NECESSITY OF CAUTION

In the use of any or all the foregoing measures one thought should stand out over and above every other in the physician's consciousness. The treatment should not be allowed to interfere with the patient's welfare or likelihood of recovery. Every measure, even the administration of food, which interferes with the patient's rest of mind and body, especially with sleep, should be interdicted as certain to yield harm. I shall never forget the look and the tone of one rare and loyal patient who, when dying from a pneumonia which had doomed her from the start, said to me, "You don't give me a moment's rest!" I learned my lesson that day, in spite of the fact that I thought her stricture oversevere; and I have never since offended on the side of overtreatment.

There should be a regular interval (not less than three hours) of rest before every new succession of treatment. The latter should be administered and completed, and again should follow the period of undisturbed rest. We can also well afford to spare the patient our own and the nurse's active interference during the night hours, except in a grave emergency. If treatment is conducted along these lines, and if these simple principles are followed, recovery should result in the vast number of pneumonias of both types, when occurring in otherwise healthy persons.

DRUG TREATMENT

As in cardiac disease, so in the pneumonias many patients would be better without than with extensive drug treatment. After the initial intestinal house-cleaning not a grain or a drop should be administered without a definite indication for so doing. Every other day the intestines must be put in order, as already outlined. If this precaution is taken, few indeed will be the cases that require any other medication from beginning to end of the disease. Danger will threaten, not so much from mechanical embarrassment of the lungs as from cardiac muscle and gangliar poisoning, from vasomotor paralysis, and from toxemic crippling of the nervous centers. In alcoholics the heart and nervous centers are special objects of solicitude.

I have found atropin the most useful of a very few available drugs, both as a cardiac tonic and as a respiratory stimulant. In small doses, used hypodermically, less often by the mouth, it will steady the heart and often quiet the labored respirations.

Morphin in occasional small doses, given hypodermically, will not only quiet the cough and further sleep, but will also allay restlessness and serve as an effective cardiac sedative and tonic.

Aconite, beyond question, will quiet the overacting heart of a fibrinous pneumonia. In bronchocatarrhal pneumonia, however, it is not a safe drug to use. The already toxic heart will not suffer the application of such a powerful and treacherous cardiac depressant.

Veratrum viride serves much the same purpose, is far safer, and was a favorite drug with our fathers in medicine. They used it with a view to redistributing the circulation, especially by emptying the congested lungs and filling the abdominal vessels. Pilocarpin may be used in the presence of a strong heart to produce free sweating, and skin elimination. Strychnin, digitalis, strophanthus, and spartein, camphor, ammonia, and the calcium salts are all cardiac stimulants that may be employed when the heart begins to fly signals of distress. Too much should not be expected of any one.

Antitoxins and vaccines which promise anything in the way of real success in preventing or curing the disease have not yet been secured, probably for the reason that most pneumonias are mixed infections, and in most instances more strains than one of the main infecting organism are busily at work.

Quinin, now given in massive doses by the mouth and rectum in the form of quinin bisulphate, or hypodermically, as quinin and urea hydrochlorid, has seemed to bring miraculous results in certain hands and in certain localities. The drug has produced absolutely no effect in other sections and in other series of cases.

Expectorants seem calculated only to disorder the digestive tract; pulmonary antiseptics accomplish very much the same end. Certainly no harmless drugs known to medicine can be aimed at the disinfection of the tissues of the lung with any reasonable certainty of reaching their destination, except by local application. Creosote, creosotal, hexamethylenamin, formaldehyd inhalations, have all been suggested and employed, and have accomplished no evident benefit for the patient.

Alcohol is no longer considered a cardiac tonic, and has well-nigh lost its right to a place in a sane pharmacopeia. Just as pneumonia in the alcoholic (nearly always of the bronchocatarrhal type) is in the great majority of instances a fatal process, so the use of alcohol in the treatment of pneumonic toxemia constitutes a paradox of effort that is difficult to understand on any other ground than one of ignorance. Alcohol is a cardiac muscle poison and a vasomotor paralyzant. Both of these forces we wish to preserve, not destroy. Therefore, after many hundreds of years filled with object demonstrations so plain that they stare us in the face, we are reluctantly beginning to cease teaching our patients well-nigh incurable drug-habits under the guise of beneficial treatment.

THE CRISIS

This interesting and very little understood phenomenon and period are full of danger as well as promise for the patient. Radical changes take place suddenly in both the tissues and in the functions of the body, and the resulting shock to the vital centers is severe. The sudden fall of temperature, the tremendous expenditure of nervous and chemical energy entailed in the final overthrow of the toxemia, the almost instantaneous relaxation of the tired heart, all must be met by artificial warmth, by absolute rest and sometimes even by the use of cardiac stimulants, especially by atropin. The external application of heat (hot blankets, hot-water bottles, etc.), hot water or lemonade given internally, and the cessation of all active treatment for the moment, will enable the patient, as a rule, to pass through this narrow channel into the harbor of final safety.

AFTER-TREATMENT — CONVALESCENCE

The convalescence is by no means an easy road following a severe pneumonia, especially of the bronchocatarrhal type. Every tissue has been poisoned in the toxemia, and the heart and kidneys bear the stress of the storm. Ample time is required for a genuine rebuilding of energy and vitality; and in no other condition is it so true that "haste makes waste" as in the convalescence following a toxemia of the pneumonic type. There is another danger that decreases as the days pass, but is very real during the first active movements of self-locomotion. I have known three formerly strong, vigorous men, in their convalescence from a pneumonia, rise from their chairs to greet relatives and fall over dead from a pulmonary embolus. This possibility calls still more urgently for care in the matter of too early exertion. As many patients are denied a full return to power and health by a too early resumption of the strenuous life as by the exigencies of the acute illness. The daily routine should be resumed step by step only, and organs like the heart and liver and kidneys should for many a day be regarded as objects of care and concern.

DELAYED RESOLUTION

Occasionally the resolution of the consolidated lung comes to a standstill for reasons that are difficult if not impossible of explanation. In such a case, counter-irritation in the form of blisters, dry cupping or iodin applications may be tried. In more than one instance I have seen unresolved consolidation mistaken for a pleural effusion, and resolution follow promptly on the puncture of the lung by the needle. There is little doubt in my mind that this method may be used to advantage for stimulating sluggishly healing lung processes. More important is the general hygienic upbuilding of the patient, which will go far toward recommencing and completing the work begun at the time of the crisis.

CONCLUSION

In glancing back over this outline of the treatment of the pneumonias, it gives some satisfaction to recall the fact that the vast majority of strong, previously healthy persons with the pneumonias ought to recover, as many do, with little or no treatment, except good nursing and scrupulous intestinal care. One might almost say that few, if any, otherwise healthy children should die from either type of the disease. There is no question as to the fact that many pneumonia patients are hurried, if not helped, into the grave by overtreatment.

"Purging, diet and bathing" were the watchwords of Asklepiades, and of a long succession of the ancients. Add both cold and warm clean air to this triad and we shall have before us the outline of the most successful modern treatment of one of the most treacherous and dread forms of systemic and pulmonary disease.

1827 Spruce Street.

Minimum Wage Law and Women.—An industry which does not pay its employees enough to cover their necessary cost of living is a parasite on the homes of the poor and is subsidized by its employees. If any industry is so important to the community as to deserve to be sustained by a subsidy, such a subsidy should come from some other source than its working girls. The principle on which the act is based is that the welfare of women must take precedence over any commercial consideration. The mothers of the future generation should not be sacrificed to industrial gain.—Father O'Hara, Chairman Oregon Industrial Welfare Commission, in *Survey*.

THE DIFFERENTIAL DIAGNOSIS OF CHOLELITHIASIS FROM GASTRIC AND DUODENAL ULCER

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The statement so frequently made that gall-stones, in a large percentage of cases, produce no symptoms, is misleading and requires some qualification. It is true that they are often found during operation or post mortem when their presence has not been suspected, but in most cases symptoms were present, and were attributed to disease of some organ other than the gall-bladder, usually the stomach or duodenum and sometimes the appendix.

Recognition of this fact has induced some authors to group cases in two classes: (1) those giving direct symptoms, unmistakably indicating gall-bladder disease; (2) the group presenting indirect symptoms referred to other organs. It is to the group presenting symptoms of uncertain meaning that attention is invited, because it is in this class that difficulty is especially apt to be encountered in establishing a correct diagnosis.

A brief reference to the embryology and physiology of the organs involved may explain the causation of some symptoms, and thus lead to a more accurate interpretation of their meaning. It will be recalled that the liver develops as a pair of hollow outgrowths from the upper part of the duodenum. At a certain stage in this development the right and left hepatic ducts open separately into the duodenum; but later the duodenum becomes pouched where they enter, and this pouch is drawn out to form the common bile-duct, from which the gall-bladder and cystic duct arise as a hollow evagination. These structures are innervated by the same nerve that supplies motor and secretory fibers to the stomach; that is, the vagus. In addition, they are intimately connected with the same sympathetic ganglia, and receive terminal fibers from the same spinal nerves, namely, the four lower dorsal and the two upper lumbar nerves.

In addition to purely reflex disturbances, dependent on the above-mentioned anatomic relations, pathologic changes often involve the stomach, duodenum or colon through the formation of adhesions, which cause traction, dislocation or obstruction, and produce symptoms of organic disease in these organs. It is easy to see that in these relations there exists a mechanism capable of producing almost every variety and degree of disturbance in the motor, secretory and sensory functions of the stomach. It must also be remembered that either functional or organic disease of the stomach may coexist with gall-bladder disease without a causal relation of the one to the other.

The physiologic relation existing between the stomach and gall-bladder is another cause of confusion in the interpretation of symptoms. For example, it is frequently stated that the onset of an attack of biliary colic bears no relation to the ingestion of food. This is true in some cases, because there are other conditions which may induce contractions of the gall-bladder, such as severe exercise; but eating will also do this, for the reason that contractions of the gall-bladder are normally produced by the passage of the duodenal contents—especially fat and peptone—over the papilla of Vater. Evacuation, therefore, occurs during the later stages of

gastric digestion. If, at this time, a stone or bit of tenacious mucus engages in the orifice of the cystic duct and occludes it, what would have been a painless evacuation becomes a biliary colic.

The diseases mentioned as most frequently simulating biliary colic are gastric or duodenal ulcer, appendicitis, right-sided kidney lesions, such as nephrolithiasis and Dietl's crises. Rarer conditions, which should not be forgotten, are right-sided pleuritis, the gastric crises of locomotor ataxia, lead colic and aneurysm of the hepatic artery. Kidney lesions may be recognized or excluded by examination of the urine, ureteral catheterization and roentgenographic examination. The correct diagnosis of gastric and duodenal ulcer is especially important from the fact that gastric symptoms commonly occur in biliary disease, while an attack of biliary colic is not always characteristic. Instead of a sudden onset with sharp pain in the right hypochondrium, radiating to the back and shoulder, which may occur at night, and have no relation to eating, it often begins, during digestion, with moderate pain in the epigastrium, which gradually increases in severity until vomiting occurs, sometimes with consequent relief. If in such a case as this the stomach should be examined, hypochlorhydria is often found, or, more frequently, hyperchlorhydria; and in those cases in which the pain has not been severe enough to produce emesis, food remains are found in the stomach eight or more hours after eating.

Such findings are especially apt to attract the whole attention of the examiner to the stomach, and a wrong diagnosis may be made. There are, however, certain characteristics by which primary gastric disease and reflex disturbances may be distinguished. Although biliary colic may and sometimes does occur during the period of gastric digestion and is related to taking food, it will be noticed that the most harmless food sometimes induces an attack of maximum severity, while occasionally the patient can eat the coarsest solid food without discomfort. Between attacks the health remains good. The duration of the pain does not correspond with that of gastric disease. It is often much shorter and sometimes terminates suddenly. In other cases it continues for several hours after the stomach is emptied, either normally or by lavage or emesis.

Local tenderness is of greater diagnostic significance than pain, but even this is of uncertain value, because it is also present in nearly the same region in duodenal ulcer. The tenderness of ulcer is, however, usually more circumscribed than that of gall-bladder disease. Tenderness of the gall-bladder or liver is never absent when a calculus or inflammation is present. It is best elicited by pressing up under the margin of the ribs at the moment of deep inspiration, and is recognized as a diffuse deep-seated pain felt at the moment the edge of the liver touches the hand. The so-called dorsal tender point is present in both gastric ulcer and cystic disease, but with a certain difference. Boas describes increased tenderness to pressure on the right side 3 finger-breadths from the spine, extending from the twelfth thoracic to the first lumbar vertebra. This is present in the interval as well as during the attack and in the absence of tenderness over the gall-bladder. The dorsal tenderness of ulcer is very rarely limited to the right side, but is more common on the left side or both sides, and is more extensive up and down the spinal column.

Jaundice is of little value as a diagnostic sign, because it occurs in less than half the cases of cystic disease and occurs in other conditions simulating biliary colic, notably duodenal ulcer.

Fever, being due to infection, is absent in uncomplicated cholelithiasis. When present, it indicates inflammation of considerable degree and duration, because the lymphatic supply of the gall-bladder is poor and absorption of toxins is slow. In the first few attacks the absence of fever is therefore of little significance, its presence indicating cystic disease rather than gastric or duodenal ulcer.

Examination of the feces will often produce evidence of value in differentiating cystic from gastric disease. Obstruction, if present, may be recognized, and occasionally in cases scarcely suspected a gall-stone may be found, which is of such importance that it is worth the trouble of a careful search. The presence or absence of occult blood must be interpreted with great care after due consideration of the symptoms and duration of the illness. In this connection it is to be remembered that ulcer and cystic disease may coexist. The severe vomiting of biliary colic sometimes produces hematemesis, and the passage of a stone as well as an ulcerating gall-bladder may cause the appearance of a minute amount of blood in the stool and lead to a false diagnosis of gastric ulcer. Briefly, the presence of occult blood does not help in the diagnosis, but its absence excludes active ulcer of the stomach or duodenum.

The following clinical reports serve to illustrate how closely cholelithiasis may simulate gastric and duodenal ulcer:

CASE 1.—Miss A., aged 56, for two years prior to examination felt mental depression and sluggishness after meals, and three or four times a year had what was called "acute indigestion." The attacks began a variable length of time after eating, consisted of pain in the epigastrium radiating to the back, nausea and vomiting, and continued an hour or more, usually until some such hard food as bacon, slaw or curds had been ejected. Between the severe attacks she suffered after meals with distention of the stomach, eructations and nausea. The appetite became poor, and the attacks increased in frequency and severity.

When examined the patient was found to be healthy-looking, well nourished and free from fever and jaundice. There was moderate tenderness 1 inch to the right of the median line, 1 inch above the umbilicus and over the tenth rib posteriorly just to the right of the spinal column. An examination of the gastric contents after a test-breakfast showed a total acidity of 54, and a trace of occult blood.

While the patient was on a meat-free diet, the feces were repeatedly examined, and occult blood found on every occasion. During the period of observation she had a very severe attack of pain and vomiting half an hour after eating a cracker and drinking a glass of milk. On another occasion she ate milk toast and suffered a similar attack two hours later. Such attacks occurred repeatedly a variable time after eating soft food. Although blood was present in the gastric contents and stool and vomiting afforded relief, doubt was thrown on the diagnosis of gastric ulcer by the occurrence of sharp attacks of pain and vomiting a variable time after eating the mildest food. During the systematic examination of the feces, three gall-stones were found.

CASE 2.—Mr. L., aged 27, was first examined June 14, 1911. He had undergone appendectomy in 1908, and was operated on for exophthalmic goiter about May 7, 1911. The patient, when seen, complained of severe pain in the epigastrium, radiating up under the ribs toward the back, which occurred about every second day, regularly two hours after the principal meal, and continued for two or three hours, unless relieved by hot applications.

Tenderness, 1 inch to the right of the median line, and 1 inch above the level of the umbilicus, was noted. A slight subacidity was found after a test-breakfast. The total acidity was 38. The bowels were constipated and the hard scybalous feces contained occult blood on every examination.

Under the treatment for duodenal ulcer, the attacks of pain decreased in frequency and severity and the patient gained weight. July 13, 1911, the patient had a mild attack of abdominal pain before breakfast. September 11, 1911, a severe attack of abdominal pain occurred, with tenderness over the region of the appendix and ascending colon. The temperature was 99 F. September 14, after consultation with the surgeon who originally referred the case for examination, the patient was taken to the hospital. Attacks of abdominal pain, muscular rigidity and slight elevation of temperature (99 to 100 F.), with moderate leukocytosis (9,000), recurred at intervals of a few days, but finally subsided and the patient left the hospital free from symptoms. Six months later, March 10, 1912, there was another severe attack of abdominal pain, without fever. April 9, 1912, an attack began at 6 a. m. and was followed by headache, chilliness, a pulse-rate of 100 and a temperature of from 100 to 102. The leukocytes numbered 7,600. A slight jaundice developed for the first time April 14, 1912. On rest and cold applications the acute attack subsided.

April 18, 1912, at operation, the gall-bladder, duodenum, pylorus and a part of the transverse colon were found embedded in a mass of dense adhesions. The gall-bladder contained a number of stones, was ulcerated and very closely adherent to the transverse colon. Apparently it had once perforated into the colon and the opening subsequently became closed by the contraction of the adhesions. The patient has remained well until the present time, more than two years after operation.

In this case, the pain at regular intervals after eating, blood in the feces and tenderness in the right hypochondrium led to a wrong diagnosis of duodenal ulcer. This diagnosis was, of course, revised when it was observed that the pain occurred at irregular intervals and without relation to eating. One naturally asks, Were the gall-stones present three years previously when the appendix was removed?

CASE 3.—Mrs. R., aged 40, was first seen Jan. 24, 1913. Her mother died of cancer. About eleven years prior to examination she had a pelvic operation performed. The uterus was "suspended and a tumor and glands removed."

For seven or eight years she had occasional attacks of "acute indigestion." At first the attacks were rare, intervals of months or even years intervening during which she could eat anything without discomfort or pain. The attacks became much more frequent, especially in the month preceding examination, during which time she had three or four attacks. These occurred always four or more hours after eating, but never during the day. The pain was described as vise-like in character, was located in the epigastrium, increased in severity until she was doubled up and was accompanied by a cold sweat. Food, whisky and even large doses of morphin sulphate failed to relieve the pain entirely, but it usually disappeared gradually by morning. Vomiting often occurred or was voluntarily induced with partial relief.

The patient was stout, well nourished and of good color. There was slight tenderness over the pyloric region. After a test-breakfast, about 100 c.c. of nearly clear fluid was aspirated, which was free from any trace of occult blood, and contained no hydrochloric acid, either free or combined. The feces were also free from occult blood. After a test-supper of raisins and rice there was epigastric pain which increased in severity, and continued until the physician was called eight hours later. The stomach was then irrigated and a large quantity of the supper removed. The pain continued until relieved by morphin. Gall-stones were suspected, but in order to exclude pyloric stenoses a roentgenogram was made, which showed a gall-stone impacted in the cystic duct. The stomach appeared to be free from deformity.

At operation the gall-stone was removed, and no lesion was found in the stomach, pylorus or duodenum.

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CYSTS OF THE PROSTATIC URETHRA

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Because of the apparent rarity of the condition, the following cases are of interest:

CASE 1.—W. M. R., aged 36, unmarried, complained March 20, 1913, of "impotence." His family history was unimportant. He had had typhoid thirteen years before. The patient gave no history of syphilis, but he had had a number of attacks of gonorrhea, one of which was complicated by epididymitis of the left testicle. Seven years before he had been massaged for some weeks for prostatitis; since then he had had no urethral disturbance except dribbling after micturition and gluing of the lips of the meatus. His habits, sexual and otherwise, were good.

A few hours before consulting me he had attempted intercourse and failed utterly to induce an erection. He stated that he was in excellent health, but for some months past had been easily exhausted and had felt tired from his waist down. He had not attended to his work with his customary feeling of energy. He had not attempted coitus during the preceding two years, although before that time he had led an unusually active sexual life.

Examination showed the external genitalia to be well-developed and normal. There was no urethral discharge and the urine (three-glass test) was negative with the exception of a few shreds in the first glass. The whole surface of the prostatic urethra from the margin of the internal vesical sphincter to the beginning of the membranous urethra was found, on endoscopy, covered with cysts from 1 to 2 mm. in diameter, round or somewhat oval, with the long axis corresponding generally to that of the urethra. Two of them just external to the vesical orifice were larger, measured about 4 mm. in their long diameter, and lay transverse in the wall of the urethra. No normal mucous membrane was visible, even the colliculus being included in the cystic degeneration.

CASE 2.—An unmarried clerk, aged 26, complained May 21, 1913, of a gleet for which he had been under treatment by prostatic massage for eight months. He had had an attack of gonorrhea five years ago but gave no history of syphilis or other venereal diseases. When an examination was made a transparent mucoid discharge, which microscopically consisted of mucous shreds, epithelium and a few pus-cells but no gonococci, was expressed from the meatus. The urine (three glasses) was negative with the exception in the first glass of a few fine shreds made up of epithelium and pus-cells.

The endoscopic examination showed practically the same condition in the prostatic urethra as in Case 1, except that the site of the lesion began within the margin of the internal vesical sphincter, which was smooth and normal in appearance, and extended 1.5 cm. anterior to this point. The whole circumference of the urethra within this area was the seat of the change. The mucous membrane of the prostatic urethra was hyperemic, bled easily and in places was granular in appearance. The colliculus was apparently normal.

Both the cysts were sessile, white and looked in general like pearls sunk half way in the mucous membrane. They were insensitive to the touch of the probe or swab and did not bleed except when incised; the walls varied in thickness, those of the smaller cysts consisting of a thin membrane which collapsed completely when incised or torn, while the larger cysts were quite resistant to the endoscopic knife and did not collapse entirely when opened. The contents, which were withdrawn with a syringe after incision, appeared to consist of a clear fluid which, microscopically, contained no cellular elements or organisms. This examination, however, was unsatisfactory on account of the presence of red blood-corpuscles as a result of the incision, which did not in itself cause enough bleeding to interfere materially with further procedures. No cultures could be taken at the time.

In the first case the condition of the margin of the sphincter was well shown. When the endoscope was pushed into the bladder and slowly withdrawn, in place of the smooth,

rounded, bright red circumference of the sphincter internus which normally comes into view and closes on the extremity of the endoscopic tube like an iris diaphragm, a series of grayish-white excrescences was seen, irregular in size, each semicircular at first view, but losing this shape as they came together and were compressed by the contraction of the sphincter. As the tube was withdrawn through the prostatic urethra the cysts continued to come into the field of vision in one thick continuous cluster which was crowded together in a formless white mass as they disappeared in the apex of the funnel formed by the collapse of the walls of the urethra behind the end of the tube.

A cystoscopic examination showed a normal bladder in each case. The extension of the process to the margin of the internal sphincter in Case 1 was demonstrated by the corrugated line which the border of the orifice assumed across the lens of the cystoscope, each corrugation corresponding to a cyst, which indicated that the cysts extended around the circumference of the sphincter without invading the bladder. That this caused an imperfect closure of the internal sphincter in this instance was evidenced by the difficulty of keeping the field dry while the cysts were being treated through the endoscope. The end of the tube would be flooded with urine with a regularity suggesting the functioning of the ureters.

The treatment consisted of extreme dilatation with the Kollmann posterior dilator, and incision of the cyst walls. A few dilatations served to destroy the small thin-walled cysts except a few within the margin of the internal sphincter. These and the larger cysts with thick walls were treated by incision followed by cauterization with the solid silver nitrate stick. An immediate improvement followed. The first patient recovered completely. The second still has a mucoid discharge. The few neurasthenic symptoms he showed have improved.

Although but few of these cases have been reported in the literature, I believe that were the endoscope used more often conditions such as I have described would be found more frequently. Solitary cysts of the prostatic urethra are not uncommon. Many of them are found in the fossae between the colliculus and the lateral walls of the urethra and are probably retention cysts of the prostatic ducts. In one case a cyst covered the orifice of the left ejaculatory duct. The patient, a physician, was a marked neurasthenic. The left lateral prostatic lobe was larger than the right, although not tender on pressure. The left seminal vesicle was distinctly more distended than the right. The mere touching of the verumontanum with a swab caused a flow of secretion containing spermatazoa into the endoscopic tube showing the marked irritability of the part. There was no history of venereal infection.

The solitary cysts in this region differed in appearance from the cysts of the multiple variety which I have described. They were bluish-red, larger (from 5 mm. to 8 mm. in diameter), had the general appearance of blebs, and when incised, collapsed completely, leaving a distinct depression in the mucous membrane.

The origin of these cysts is as yet not altogether clear. J. Englisch,[1] in seventy necropsies on new-born infants, found, in five cases, cyst-like bodies at the border of the sinus pocularis, which he concluded were retention cysts formed as the result of a malformation or congenital inclusion of glands in this region. They caused obstruction to the passage of urine, but usually ruptured either spontaneously or as the result of catheterization a few days after birth. Springer[2] reported four such cases, three of which were in adults. Michailow[3] described a similar cyst in a patient, aged 28, who was a marked neurasthenic as a result of the frequent micturition, due to the irritation and obstruction, in addition to the pain which had invariably accompanied ejaculation since puberty. A section of the wall of the cyst showed the mucosa of the sinus pocularis, the prostatic urethra, and the intervening layers including some of the glands of the mucosa. Its treatment by incision and cauterization resulted in a cure of the local and neurasthenic symptoms. Buerger and Oppenheimer[4] found a cyst of the prostatic urethra just within the margin of the internal sphincter at necropsy in a man who had died of peritonitis. The cyst was 6 mm. in diameter, had a number of very small cysts in its immediate vicinity and contained a mucoid greenish-yellow fluid with a few desquamated epithelial cells. They considered at that time that the location of the cyst was unique. Subsequent observations have shown that the condition may be more frequent than they supposed, for in a later article Buerger[5] described a number of such cases; among them he had observed three, which, like the two I have described, showed a cystic degeneration involving large areas of the prostatic urethra. All of these patients gave a history of one or more preceding attacks of gonorrhea, which were more or less protracted. This seems the only etiologic factor they have in common.

The pathology of this condition is more or less obscure. It is possible that they are retention cysts formed by the occlusion of the ducts of glands in the mucosa brought about by inflammatory changes. The mucous membrane of the prostatic urethra in the adult is apparently but scantily supplied with glands. Paschkis,[6] however, states that he has observed in the epithelium of the mucosa of the prostatic urethra, especially in the young, involution groups of cells, which differ in size, nuclei, staining properties and general characteristics from the surrounding cells; these, while possessing no mucus contents, no doubt represent, in his opinion, intra-epithelial glands, which are either in a state of functional rest or in process of development. Stoerk[7] and Zuckerkandl[8] found small collections of mucus in normal and pathologic cases, which, by pressure on the surrounding cells, formed cystic cavities. Stoerk held them as the after-effects of a pathologic process; Zuckerkandl considered these small collections as physiologic, but when numerous and large, as pathologic. If such is the case, the history of preceding attacks of urethritis given by these patients is significant.

The local symptoms were not distinctive; they were the same as we see in any long-standing chronic urethritis. The subjective symptoms, if any were present, were those characteristic of the neurasthenia accompanying many of the chronic diseases of the posterior urethra. They were the predominating feature in the first patient. This is often the result when the verumontanum is involved in a pathologic process.

CONCLUSIONS

1. A cystic degeneration of the posterior urethra may follow a preceding inflammation of the part.
2. There are no symptoms characteristic of this particular affection.
3. The only method of diagnosis is by endoscopic examination.
4. Treatment is by dilatation followed by incision of the remaining cysts under control of the eye.

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8. Zuckerkandl: Monatsb. f. Urol., 1902, vii, 519.

EQUIPMENT OF A SMALL HOSPITAL: MAKING OVER A DWELLING-HOUSE *

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The time is rapidly approaching when every community of any size or importance must have adequate hospital facilities to take care of all the sick in the community; but this is not the case to-day. There are many communities of importance and considerable population whose hospitals, when they have any at all, are wholly inadequate to take care of the needs of the community in accordance with the modern demands of medical science. This means that in such communities the medical profession is far in advance of the hospitals. The grave responsibilities of the physician will not permit him to allow a condition of this sort to prevail if he can help himself, and thousands of most excellent physicians and surgeons in this country to-day are casting about for some scheme by which they can give to their patients modern surgical and medical attention. A great number are meeting this problem by acquiring and remodeling dwelling-houses in their neighborhoods and equipping these the best they can to do the work which they feel they cannot get done elsewhere. So important has this problem become within the last two or three years and so many inquiries are coming to hospital administrators everywhere from physicians that it was thought a brief paper on this subject might not be out of place.

Fig. 1.—A single house which can be remodeled, the upper half story lending itself to comfortable quarters for help.

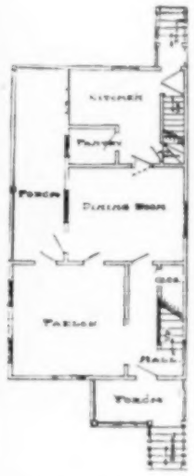

Fig. 2.—The ground-floor plan of the house shown in Figure 1. A side porch to the rear gives abundant air-space.

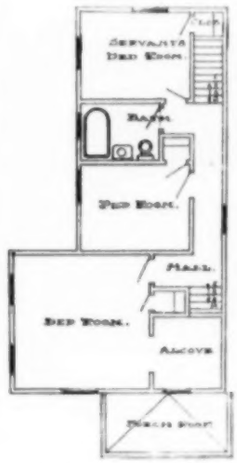

Fig. 3.—The second-floor plan of the same house. A bedroom toward the rear will make an operating-room by knocking out the north wall and putting in glass.

Figure 1 shows a single house somewhat isolated from surrounding structures, thus giving plenty of fresh air and sunshine. This house occupies a position on one of the downtown streets of a town of about 15,000 people. Its owner, rather a well-to-do business man, was forced to move away by the encroachments of business. This house was rented for years and fell into a state of shabbiness and poor repair. The upper half story will lend itself nicely in the remodeling process to comfortable quarters for some of the help. Figure 2 shows the entrance, the small hallway, a staircase leading to the second floor, a closet under the stair and an opening from the hall into the dining-room. In this particular house there was a second or back parlor instead of the single parlor as shown in the illustration. A side porch to the rear gave abundant air-space downstairs. This parlor could be used for a parlor, a reception-room for a small hospital, or for two or three beds

Fig. 4.—A rather large double frame house which can be used if nothing better is found.

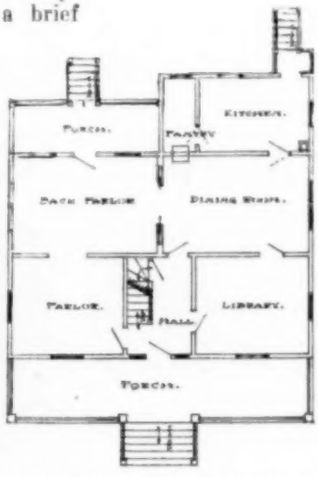

Fig. 5.—The ground-floor plan of the house shown in Figure 4, capable of taking care of four patients. It need not be remodeled, but some repairs are necessary.

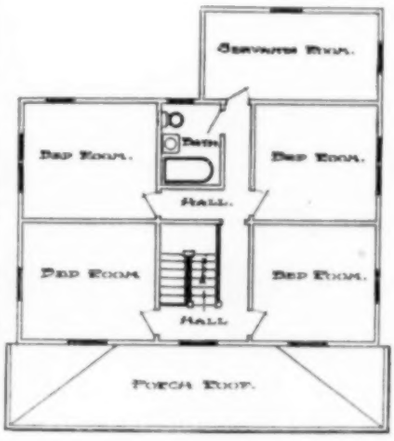

Fig. 6.—The second-floor plan of the same house, which will comfortably accommodate from ten to fourteen patients.

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

* Because of lack of space this article is abbreviated in THE JOURNAL. The complete article appears in the author's reprints.

as the proprietor found necessary. The dining-room would be used for a dining-room for well people as well as for convalescents. The kitchen and pantry will lend themselves very nicely for the small, private hospital purposes. Figure 3 shows the second floor with large bedroom and alcove, which may be used together for three or even four patients. Along the hall, toward the rear, is a second bedroom with one window and closet.

Fig. 8.—Farmhouse, later used for the Chicago Fresh Air Hospital, before alteration.

Farther to the rear are the bath and water-closet and still farther another bedroom with windows on two sides. This was formerly a servants' room but will be large enough for one, and under necessity, two patients; or better still, a very nice surgical operating-room can be made of this room by knocking out the north wall and putting in glass.

Figure 4 shows a rather pretentious double frame house by no means ideal for a hospital, but capable of being made to do very nicely if nothing better can be found. Figures 5 and 6 show the first and second floor

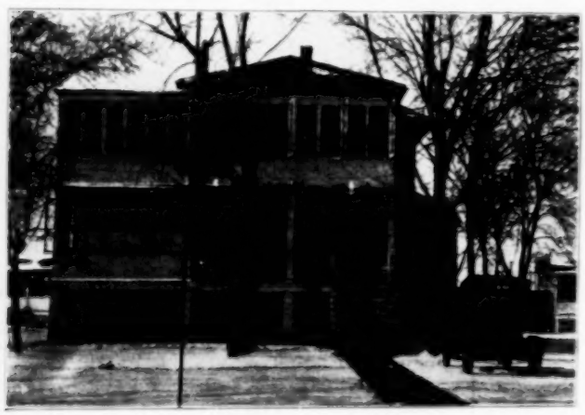

Fig. 9.—Front view, after alterations.

arrangement. Practically no modifications need be made in this house except whatever repairs are made necessary by its neglected condition. It will comfortably take care of four patients down-stairs and from six to ten patients up-stairs.

Figures 8 to 16 give a meager suggestion of a plan that worked out extremely well. They give views and floor-plans of the Chicago Fresh Air Hospital, which Mr. James A Patten of Evanston created, and the work of alteration on which was done by Mr. Meyer J. Sturm. This was an old rambling farmhouse. Figure 8 shows

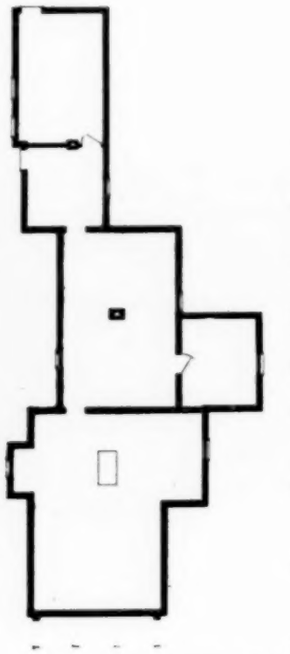

Fig. 10.—The basement of the Chicago Fresh Air Hospital, before remodeling.

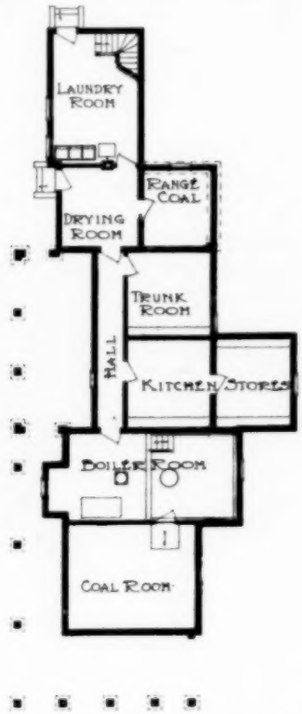

Fig. 11.—The basement in its remodeled state.

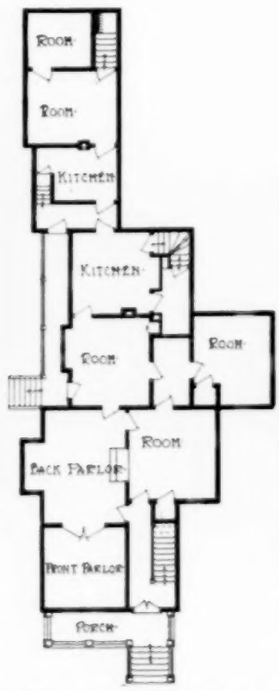

Fig. 12.—The first-floor plan before remodeling.

Fig. 13.—The changes made in the first floor.

the house before the remodeling, Figure 9 shows a front view after the porches have been enclosed. Figure 10

shows the basement before remodeling, and Figure 11 shows the changes that were made in the basement. Figure 12 shows the first floor before the changes were made and Figure 13 shows the first floor afterward. The complete remodeling of this house cost less than $1,500, and it was made acceptable for the accommodation of forty-one patients. Figures 14 and 15 show the second floor before and after alterations. Figures 17, 18, 19 and 20 show a most interesting transformation of a residence into a 108-bed children's hospital. Two brothers, Messrs. Lyman, gave to the city of Minneapolis their two residences, occupying a block of 400 by 500 feet, one of the houses facing on one street and the other facing the next parallel street, so that the two houses backed up to each other with an intervening space of 100 feet. The smaller of the two residences was altered into a service building and home for nurses; the other was modified as shown in the figures. The cost of all alterations and equipment for both houses was approximately $5,000.

Fig. 14.—The original second-floor plan.

Fig. 15.—The second floor after remodeling.

THE EQUIPMENT OF THE SMALL HOSPITAL

In contemplating the equipment of one of these small dwelling-houses for hospital purposes, about the only thing that need be thought absolutely necessary is a small sterilizing-plant made up of water, dressing, utensil and instrument sterilizers. This plant adequate in size should be as follows:

2 six-gallon water sterilizers.
1 dressing sterilizer 16 by 24.
1 utensil sterilizer 16 by 16 by 18 inches.
1 instrument sterilizer 6 by 9 by 12.
Cost of sterilizing plant, $300.

The balance of the equipment for a hospital of this sort follows, with approximate prices which will have to be paid for the several articles, the whole equipment to cost approximately $952.50 plus $40 for each patient more than one, since the bed equipment for only one patient is counted.

THE OPERATING-ROOM EQUIPMENT

One of the principal reasons why the physician must have a hospital at all is to do surgery there, whether it be general surgery or the surgery of a specialty, as in eye, ear, nose and throat work, genito-urinary surgery, gynecology or orthopedics. A very simple equipment for such a room will be as follows:

1 table	$25.00
1 small cabinet	50.00
Ether masks, @ $1, or gas masks and apparatus, or both	75.00
Basin and arm plunge on stand	10.00
1 low stool for anesthetist, etc.	4.00
1 small table for anesthetist	4.00
1 instrument table, with extension	6.00
1 small table for surgical nurse	4.00
Cost of operating-room equipment	$178.00

WARD AND NURSING EQUIPMENT

In such a hospital we shall have one or two rooms for two or three patients each and perhaps two or three rooms for private-room patients, and I am considering now a hospital to contain, say, from ten to fifteen beds, and at this particular place the things necessary to nurse patients which will be used in common in all parts of the house and for all patients. These are:

Fig. 17.—Lymanhurst, first-floor plan, before alterations.

Fig. 18.—Lymanhurst, first-floor plan, after alterations.

Water or air mattress (latter preferred)	$25.00
1 dozen hot-water bottles (rubber)	15.00
1 dozen ice-bags (rubber)	12.00
1 dozen male urinals	12.00
Carried forward	64.00

Brought forward		$64.00
1 dozen female urinals		12.00
1 dozen nutritive funnels		3.00
1 dozen nutritive cans		12.00
2 stomach tubes—2 sizes		2.00
½ dozen soft rubber catheters		3.00
100 feet gum tubing, assorted sizes		8.00
½ dozen Perfection bed-pans		15.00
½ dozen Eureka bed-pans		9.00
3 packages assorted size orangewood splint mat		3.00
1 package strawberry-box wood		2.00
100 pounds hospital cotton		15.00
50 pounds oakum		3.00
100 pounds cotton batting		10.00
200 pounds rolled bandages, assorted widths and sizes, @ $0.35		70.00
1 Commode, chair and vessel		10.00
Cost of ward and nursing equipment		$241.00

EQUIPMENT FOR THE PATIENT—PER BED AND PER PATIENT

1 bed	$8.00
1 mattress	8.00
2 pillows	4.00
2 blankets	6.00
1 dozen sheets	6.00
1 rubber sheet	3.00
1 dozen towels	2.00
½ dozen bath towels	1.50
1 hair pillow	1.50
Cost of equipment per bed	$40.00

Fig. 19.—Lymanhurst, second-floor plan, before alterations.

Fig. 20.—Lymanhurst, second-floor plan, after alterations.

Now we have equipped our little hospital except for the kitchen and dining-room service, and this will differ in no particular from what the same service would be for a private family. An ordinary range will cost from $30 to $50, gas or coal as may be desired; the ordinary kitchen and dining-room utensils will be about as follows:

Range			$50.00
Pots, pans, kettles, knives, forks, spoons			25.00
Cutlery:			
Knives, 3 dozen	@ $2.50	$ 7.50	
Forks, 3 dozen	@ 2.00	6.00	
Spoons, large, 3 dozen	@ 2.00	6.00	
Spoons, small, 6 dozen	@ 1.50	9.00	
Dishes:			
Dinner plates, 4 dozen	@ 3.00	12.00	
Breakfast plates, 4 dozen	@ 2.50	10.00	
Bread and butter plates, 4 dozen	@ 1.50	6.00	
Soup plates, 4 dozen	@ 3.00	12.00	
Teacups, 4 dozen	@ 2.50	10.00	
Saucers, 4 dozen	@ 2.00	8.00	
Cereal bowls, 2 dozen	@ 3.00	6.00	
Cake covers, 2 dozen	@ 2.50	5.00	
Vegetable dishes (individual), 6 dozen	@ 1.50	9.00	
Vegetable dishes (large), 1 dozen	@ 6.00	6.00	
Soup tureens, 2	@ 3.00	6.00	
			$118.50
Cost of kitchen and dining-room service			$193.50

We have now spent $952.50 and our little hospital is complete. We must now add $40 for the equipment for each additional patient, since we have given the equipment for only one.

THE WARD UNIT OF THE GENERAL HOSPITAL *

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A noted architect said to me when I was a young student, "One needs one hundred years to study and then one hundred years to practice what he has acquired." If this is true in general architectural problems, it is doubly true in hospital planning; so that in the brief time allotted me this afternoon I can but touch the high points of the subject given me, "The Ward Unit of the General Hospital."

The ward unit is really the keynote of the hospital, for here the patient (for whom the institution is built) lives, eats, sleeps and spends his weary hours of convalescence. We should therefore never cease to study how to fill those hours with as much comfort as possible, to serve the patient good, palatable food, to guard him from undue noise and excitement from the working of the hospital, and to see that he has fresh air and sunshine. The planning of the ward unit, whether in a hundred-bed hospital or in a thousand-bed hospital, offers the same problem — the best care of the patient.

EUROPEAN HOSPITALS

Within the past few weeks I have visited and made a careful study of half a dozen of the more recent of the European hospitals. As the plans of some of these have never, I think, been shown in this country, it may be of interest quickly to review these general plans before taking in hand the subject of the ward unit. I shall consider these hospitals in the order in which I visited them—the Barmbeck-Hamburg at Hamburg, the Rigs at Copenhagen, the Bispebjerg at Copenhagen and the Munich-Schwabing at Munich.

The Barmbeck Hospital.—The new Barmbeck III City Hospital at Hamburg, now in process of construction by Architect Ruppel, consists of forty-four buildings and will house fifteen hundred patients. The cost will be 9,800,000 marks for buildings and 3,000,000 marks for equipment, total 12,800,000 marks, making 8,533 marks, or about $2,200, per patient. To build the same hospital in this country would cost from $3,500 to $4,000 per patient.

Ruppel's plan for this hospital has differed somewhat from his usual plan; for instance, he has placed the medical-unit center or the bath-house on the axis of

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis June, 1913.

his plan; while in the St. Georg, the Eppendorf, the Virchow and other large German hospitals, the bath-house is placed on the medical side, balancing the operating-building on the surgical.

Rigs Hospital.—At the suggestion of one of your members, I visited the new hospitals at Copenhagen—the new Rigs Hospital, which has been occupied but a short time, and the Bispebjerg, which will be completed this year.

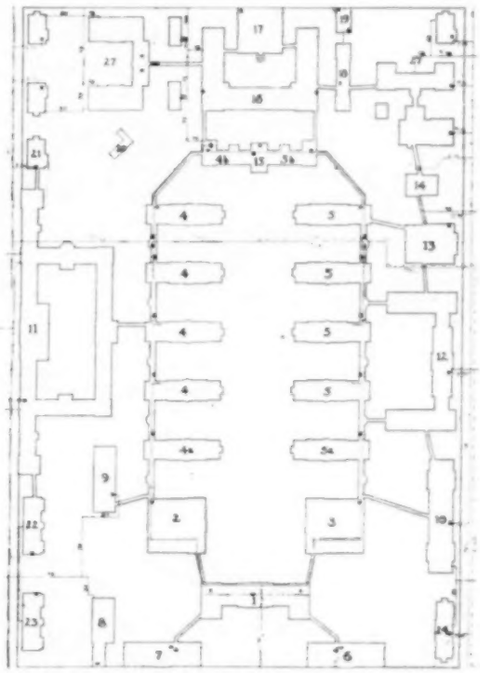

Fig. 1.—General plan of Rigs Hospital, Copenhagen.

The general plan of the Rigs (Fig. 1) is symmetrical, of the pavilion type, with connecting corridors in the main, divided into the surgical on the left and the medical on the right. There is no connection, however, between the medical corridor and the bath-house (13 on plan), which is unfortunate. There is, however, an underground connection to the morgue (14 on plan), and, as our guide expressed to us, she wished for the patient's sake that this arrangement might have been reversed.

The maternity department is one of the largest; here the vast army of unfortunate women which abounds in every large European city is cared for.

The ward unit (Fig. 2) of this hospital is worthy of study, for it is in many ways unique and has much to commend it. The staircase, elevator and noisy parts are kept at the extreme ends, away from the portion occupied by the patients. The serving kitchen, bath-rooms and sink-rooms are on a cross-corridor and the surgical dressing-room (14) and water-closets are removed to the opposite end of the building. The ward itself, containing twenty-six beds, is divided into eight sections, each section containing three or four beds. The dividing screen affords privacy to the patients and still allows free access to all parts of the room for the attendants. An isolation room and nurses' room are placed in the center; bowls for the surgeons' use and medicine-closets are placed in each ward.

These screens (Fig. 3), only 6 feet high and 1 foot from the floor, afford the same ventilation as an open ward.

I consider this one of the best-developed ward units that I have seen in Europe.

Bispebjerg Hospital.—The new Bispebjerg Hospital is located on slightly rising ground; the site, containing 51 acres, is surely most ideal. This institution consists of forty-six buildings, two and three stories high. These buildings, while isolated above ground, are all connected by wide, well-lighted underground corridors; but only the six surgical units are connected by above-ground corridors.

I was unable to obtain detailed plans of a ward unit. The service is in the center, with a large day-room on the axis, two sixteen-bed wards at either end, with two six-bed and two three-bed wards. The details of the serving-kitchen, the sink-rooms, the laboratories and the dressing-rooms are most complete.

Every building has its own airing-balconies, and the grounds are laid out with special care for the comfort of patients, with arbors, benches and fountains.

The operating-units, two in number, were not completed, but gave promise of especially good detail. For one thing, the observers of the operation enter from a special door to the space between the outer and inner sashes of the operating-room, which is about 3 feet in width.

Munich-Schwabing.—One of the most modern and complete hospitals in Germany is that at Munich-Schwabing (Fig. 4). Here Architect Schachner has embodied the best of German planning and coupled with it the best of American planning. While he has separate pavilions, he also has everywhere connecting corridors, except to the buildings for contagious diseases and special treatment; and even here there are underground corridors.

The administration department is in the center, flanked by the chapel and nurses' residence on one side and by the offices and home for interns on the other.

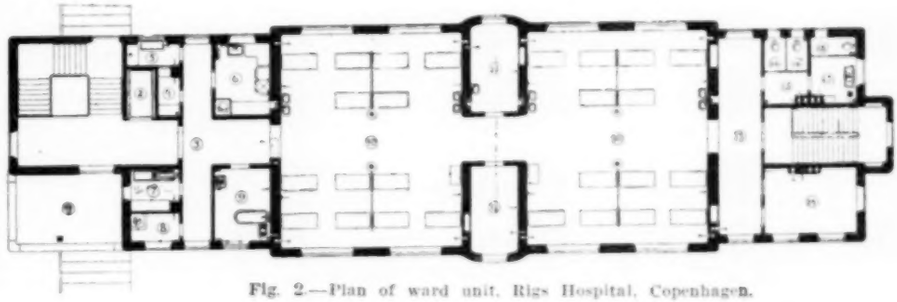

Fig. 2.—Plan of ward unit, Rigs Hospital, Copenhagen.

The surgical group has for its center the operating-building, and the medical unit the splendid bath-house. I should like to describe this bath-house, which I should say is the finest in all Europe to be found in a general hospital, but this is not the subject offered me.

There are no large wards in this hospital, the largest containing twelve beds, and all wards face the south, with opportunities (Fig. 5) for wheeling patients to the gardens and balconies.

The service-rooms are to the north, the day-room central with unit to the south and the laboratory and dressing-rooms on the north. The admitting-department for each ward unit is very complete. The patient is admitted at No. 11 and the clothes are removed and put into a container made of linen, which then hangs on a truck. The patient next goes to No. 12, where he is bathed, to No. 13, where he is given the hospital clothes, and then passes out through No. 8, where final examination is made and history completed, and thence to his room. The elevator at this part of the building is for the convenience of the second-story patients. There are airing-balconies for each flat, which are spacious and comfortable, with attractive window-boxes of flowers decorating the railing in summer.

AMERICAN HOSPITALS

The German hospitals which I have mentioned are supported largely by the government, while in our

Fig. 3.—View of general ward, showing fixed screen partitions, Rigs Hospital, Copenhagen.

country conditions are vastly different. Many of our hospitals are owned by private corporations, and it is generally a question of accommodating the largest number of patients for the smallest amount of money. Our architects are forced, therefore, to economize in every way until the ward, in many cases, has become almost a barracks for the housing of patients, the attendants being obliged to put up often with the merest necessities. I am glad to say that some of the newer hospitals are rising in scale and, instead of making a number of rooms and leaving it to the administrator later to put what equipment he can into these rooms, they are allowing their architects to provide some of the more essential units, such as the laboratory, the surgical dressing-room, the sink-room and a serving-kitchen of sufficient size for the work needed, and to design and plan for the equipment at the time of making the drawings

I have described a few of the recent ward units of Europe and would call your attention to some of our newer examples in American hospitals. I shall begin with the ward unit of the hospital of which the chairman of this Section is superintendent.

Peter Bent Brigham Hospital.—The care and thought expended on the working out of the plan of the Peter Bent Brigham Hospital makes it worthy of much study. Here Dr. Howard, with the assistance of his architects

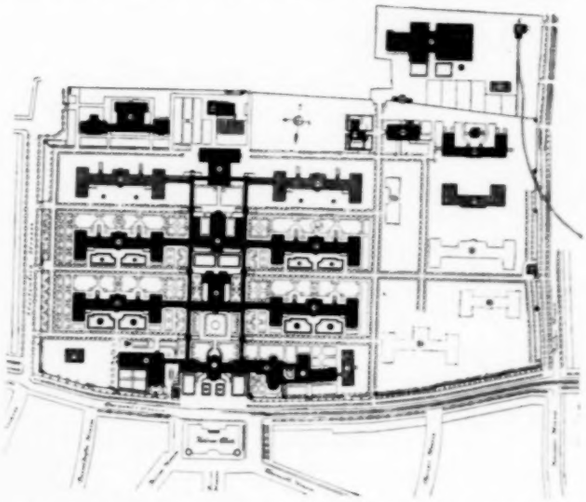

Fig. 4.—General plan of the Munich-Schwabing Hospital.

and engineers, has developed a ward unit which gives the patient every advantage of the open air, the sunlight and quick and quiet service.

The staircase and elevator lead directly from the main corridor at the extreme north end of the building.

The first floor of this ward unit contains two large wards, one of eight beds and the other of fourteen beds, and two isolation rooms, while the diet-kitchen, duty-room, baths and water-closets are grouped together on the side opposite the main ward. A cross-corridor is also provided between the two large wards. On this floor there is a laboratory and consultation-room.

On the second story there is one large ward of twelve beds, with two isolation rooms, duty-room and water-

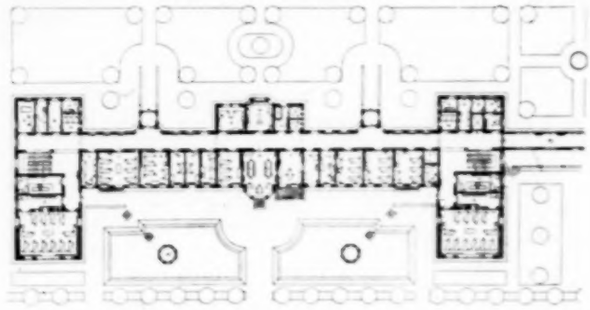

Fig. 5.—Plan of ward unit, Munich-Schwabing Hospital.

closet and ample airing-balconies or terraces, thus providing outdoor space for all patients of this ward unit.

Cincinnati General Hospital.—Another carefully planned ward unit which shows the study of European examples is that of the Cincinnati General Hospital (Fig. 6). In this Dr. Holmes has given much thought to the perfection of the ward unit.

The nurses' station, while not directly in the main ward, is in such a position that it commands a view of

all of the ward beds as well as the doors of the private rooms.

The patients' water-closet is entered through a fresh-air cut-off on the principle of best-planned English hospitals, while the sink-room is entered through the nurses' work-room or directly from the corridor. Additional water-closets are connected directly with the solarium, thus minimizing the work of the nurses and attendants.

The utilities, baths and toilets are grouped together, while the entrance to the serving-kitchen is directly from the main stair and elevator corridor. A large and commodious dining-room is provided for the patients who are able to be about.

Harper Hospital.—In the six-story building now being erected for the Harper Hospital at Detroit (Fig. 7) an innovation is introduced in the construction by making two 8-foot set-backs in the walls of the main pavilion, so that the first three stories provide for private rooms on either side of a wide corridor. The upper three stories provide for a ward of proper width for administration. This allows on the fourth floor of two large airing-balconies over the roof of the private rooms of the third story.

In this plan, also, the utilities are grouped in the center, with fresh-air cut-off between the main 22-bed wards and the utilities. Water-closets are provided at the ends of the large wards, as well as general water-closets off the main corridor.

On every story surgical dressing-rooms are provided, and on stories containing private rooms a special room for cut flowers is introduced. In this building a large roof ward is provided on the seventh story, with diet-kitchen and other utilities.

Bridgeport Hospital.—In the Bridgeport Maternity and Children's Hospital (Fig. 8) the ward unit is somewhat different from that of any of the other hospitals mentioned in this paper. In the main sixteen-bed woman's ward the principle adopted in the Rigs Hospital at Copenhagen is introduced; that is, there are four groups of four beds each, and these groups are divided by a stationary screen 6 feet or more in height, giving the semi-isolation needed in these rooms.

The crèche, as well as the serving-kitchen and sink-room, is at a distance from the ward and private-room patients.

In this plan an admitting-unit is provided, in which the careful examination and bathing of patients are conducted. Adjoining this admitting-unit is the isolation unit, in which any suspicious case can be kept for further observation.

The children's ward unit in this building is similar to the maternity ward unit, except that the screens are of clear glass, permitting the nurse on duty to have close observation of all the children and still affording the necessary isolation. The large day-room, with airing-balcony, is also provided, together with the surgical dressing-room and other utility rooms.

CONCLUSIONS

After a careful study of the hospitals, after living in them and with them and after seeing the treatment given by the different doctors, there would seem to me to be certain fundamental essentials which every ward unit should possess; by this I mean every ward unit of a general hospital in which the surgical, the usual medical and special cases are treated or in which the majority of cases that come to us in this country are cared for. These essentials can be classed under the heads, (*a*) comfort of patients and (*b*) accessibility to service.

Comfort of the Patients.—The ward should not be overcrowded. Each patient should have at least 1,200 cubic feet of air, should be able to get the sunlight, yet should be protected from it when necessary. The ward should be provided with fresh air, heated in winter to be sure, but fresh, not roasted air coming from damp, confined cellars, but from outdoors. Above all, the wards should be ventilated, and this ventilation should extend throughout the twenty-four hours in the day.

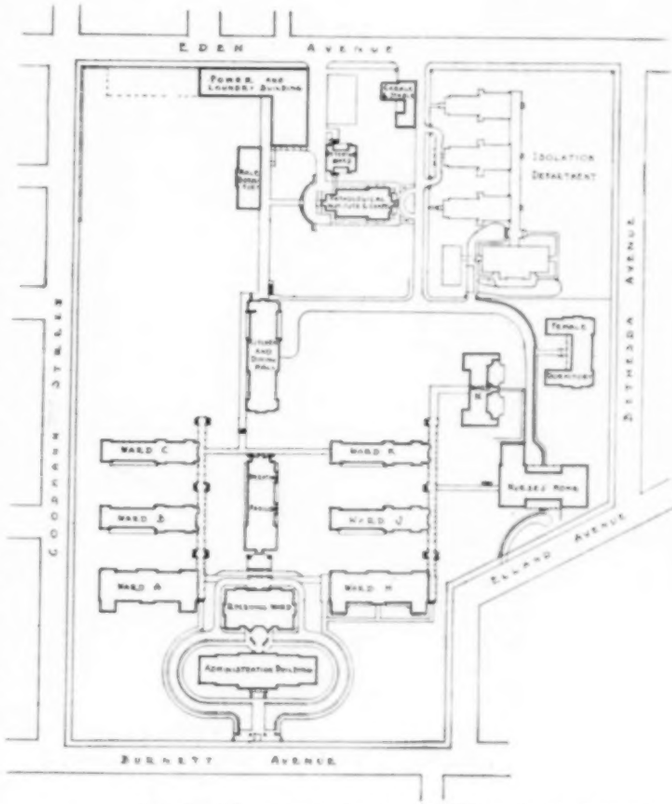

Fig. 6.—New general hospital at Cincinnati, block plan.

The patient should have semiprivacy and some place in which to hide the household gods which he may have brought with him and which are as sacred to him as some of our dearest possessions.

The lighting by day and night should be a subject of careful study. The patient's eyes should be shielded from the glaring light and a night-light should be provided, so obscured that the lighting of it for night inspection would not necessarily awaken the patients. It is my opinion that no direct ceiling light should be used, as a reflected light is much softer and more agreeable. There should be a bedside lamp, to be used for examination or for the patient's comfort in reading. Then, too, the windows should be so low that the patients, when in bed, can readily see out.

A resilient floor-covering adds not only to the comfort of the patients, on account of lack of noise, but to

the comfort of the nurses as well. Linoleum, in its various colors and thicknesses, has proved a successful floor-covering.

The therapeutic effect of color on the patient is noticeable. The coloring of the lower seven feet of the wall with some warm shade, with perhaps a simple pattern of stencil above, gives the ward a cheerful aspect.

The addition of a few simple pictures (which can be removed from the walls daily for dusting) adds a little cheer.

Then the hardware should be thought of. How often is a patient awakened by the clicking of the latch! Why not eliminate the latch? Put a pull on the inside and a checking spring, and the noise is eliminated.

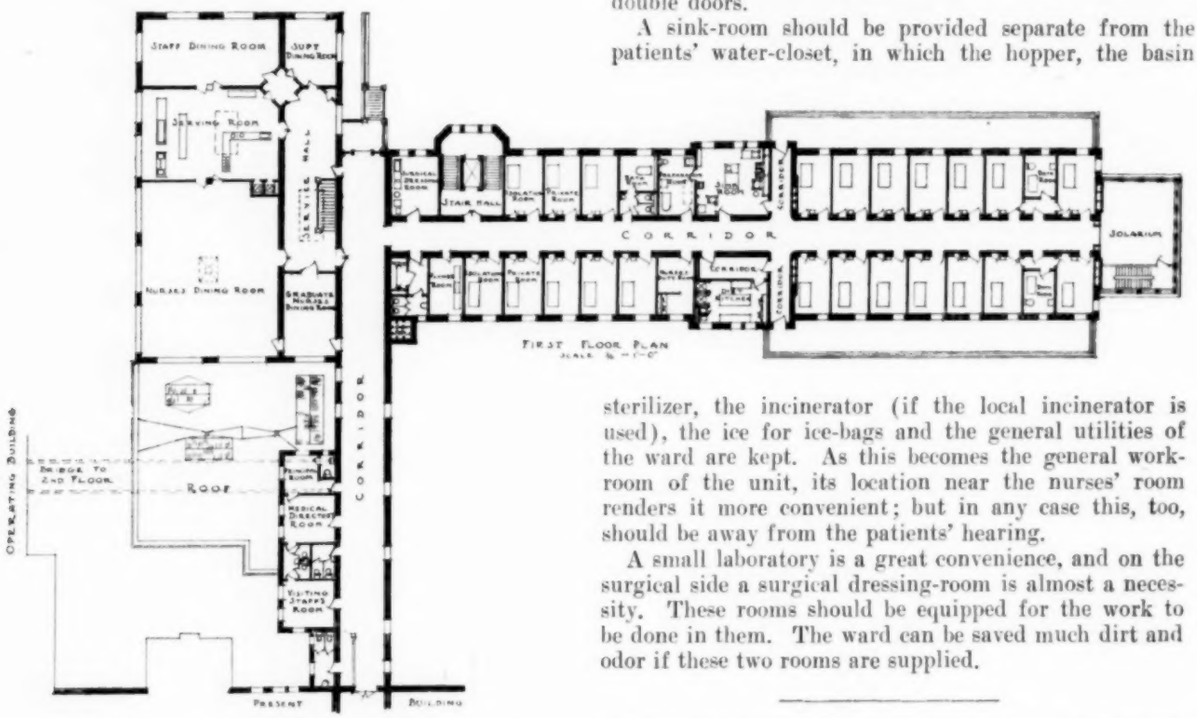

Fig. 7.—Harper Hospital, Detroit.

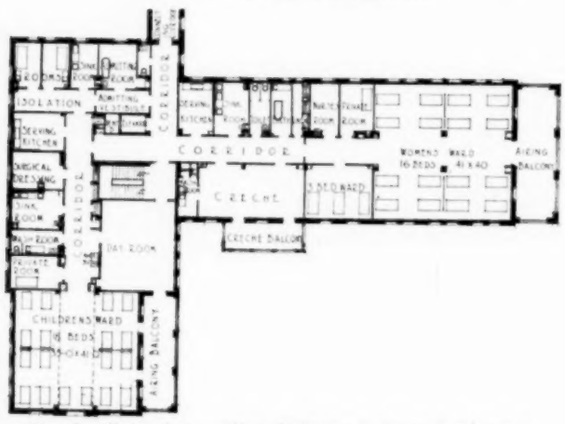

Fig. 8.—Maternity pavilion, Bridgeport (Conn.) Hospital.

The nurses' calls should be silent—lights, with perhaps a buzzer at the nurses' room, which would not disturb the patients.

Comfortable beds should be provided, with large casters for wheeling to the open air.

Provision should also be made for the comfort of the patient's visitor, with easy chairs, a table at which one may write a letter, etc.

Accessibility of Service.—Perhaps the most important thing is the serving-kitchen, to which the food should be brought hot from the main kitchen. This room should be of sufficient size to admit the various nurses and ward maids at the eating period. It should be equipped for necessary light cooking, for the keeping of food warm or cold, as needed, and, if necessary, for the cleaning of the china, for the convenient laying of trays, etc. Owing to the almost constant use and unavoidable noise of this room, it should be removed from close proximity to the patients' rooms, or should be provided with double doors.

A sink-room should be provided separate from the patients' water-closet, in which the hopper, the basin sterilizer, the incinerator (if the local incinerator is used), the ice for ice-bags and the general utilities of the ward are kept. As this becomes the general workroom of the unit, its location near the nurses' room renders it more convenient; but in any case this, too, should be away from the patients' hearing.

A small laboratory is a great convenience, and on the surgical side a surgical dressing-room is almost a necessity. These rooms should be equipped for the work to be done in them. The ward can be saved much dirt and odor if these two rooms are supplied.

ARCHITECTURE OF THE MODERN HOSPITAL FOR CONTAGIOUS DISEASES*

L. A. LAMOREAUX
MINNEAPOLIS

I hope that my paper may produce some discussion among members of the medical profession and possibly among the architects, because I am going to present a line of thought somewhat different from that which is usual on the subject of hospitals.

These institutions have followed the same line of development for centuries. They are being added to now and new hospitals are being built on the same principles that have been followed for the last hundred years. There are of course exceptions.

The United States is noted for its advancement in business buildings; we are the first country in the world in office buildings; New York is known the world over for its sky-line. Good contagious hospitals in the United States are the exception. That is, the contagious hospitals in the United States do not seem to have had

* Read in the Section on Hospitals of the American Medical Association, at the Sixty-Fourth Annual Session held at Minneapolis, June, 1913.

the same amount of thought, care and money spent on them that has been spent on the general hospitals.

Dr. Herbert O. Collins, superintendent of the Minneapolis City Hospital, and I had the pleasure of inspecting the different contagious hospitals in the United States. In selecting the best and most modern of these I think that both Dr. Collins and I would have no hesitation whatever in naming the Measles Hospital of New York City. It is a building probably 125 feet long and six or seven stories high and has more of the modern requirements of a hospital than any other we saw; it has conveniences for isolating patients in wards, conveniences for treating patients as they are treated in hospitals known as cubicle institutions, solariums, porches, splendidly lighted rooms and a handsome building taking it all through, so that without question it stands out as the best of the contagious hospitals. All the rest are developed on the old lines, that is, are scattered over almost a ten-acre lot.

The prevailing idea of any one who has the building of a hospital in charge seems to be that a large tract of ground is necessary and that the buildings must be scattered all over this tract. This principle is noticeable in all German hospitals; some of them cover acres and include forty or fifty two-story buildings, most of them connected by long, expensive underground corridors—tunnels, you might say—and possibly some corridors above. In our country this plan necessitates unduly large heating plants and unduly large fuel bills. It necessitates the construction of a basement which is about one-third of the building and is of absolutely no use except possibly for storing a few mattresses. These institutions would be better off without basements in nine out of ten cases; and yet one-third of the cost of the buildings goes into them. A large portion then goes for covering all of these buildings with roofs, which is unnecessary, and, moreover, a large amount of expense must be figured in for maintenance of these roofs. There is also an unusually large amount of outside wall. In the East we find the cost of these institutions running up to $2,000 and $2,500 per patient. That is ridiculous and unnecessary.

If I were given the problem of constructing a municipal hospital, say one in which contagious cases were also to be cared for, and I had a piece of ground one block square on which to build it, I should consider that almost ideal for a moderately large hospital, say, one which would take care of 2,000 patients. I should divide the building and block in halves. I should so locate the building that the sun would reach all the rooms both forenoon and afternoon; that is, I should, if possible, put the axis of each building on the north and south line. On one-half of this block I should build a general hospital, and on the other half a contagious hospital. Between these two buildings I should locate the power-plant, the kitchen and the laundry. Those would be the only portions of the building that I would have separated from the remainder of the institution. I would construct this building as we are constructing office buildings to-day. Here in Minneapolis we would probably build it of concrete; in Chicago and New York they would probably use the steel and tile construction. For the present needs I should make it possibly two, four, six or seven stories high. I would construct the supports of a strength to allow for the development to any height to which the institution is likely to go, say twelve, fourteen or sixteen stories. There is no reason why a hospital building sixteen stories high should not be most convenient; for example, instead of traveling through underground corridors and tunnels from one building to another over several acres, it would be possible to step out of a business or administration office, take an elevator and go in from fifteen to thirty seconds to any floor in the institution, and this would be a convenience which it seems to me would be up-to-date. This plan has another decided advantage; it makes it possible to separate different classes of cases; the medical cases and surgical cases can be placed on separate floors, the operating-rooms can be isolated, and all these separate units are quickly accessible to any one; besides, this plan has the advantage of light which cannot be had in any other hospital, the advantage of pure air away from the dust, and the advantage of increasing the size of the lawn for the use of convalescents, a thing which is impossible if the ground is practically all covered with buildings. Taking it all in all, it seems to me that there is a future for hospitals which has really never been touched on or thought of in this country.

I wish to mention a few points in regard to the present contagious hospital which we are beginning in Minneapolis. We have too little ground considering the fact that the plan which I have just outlined was not developed from the start. We have two-fifths of a block on which we are now erecting buildings which will take care of probably a thousand patients and will also have among them a nurses' home. If the old portion of the building had not been started three stories high and spread out, the system which I mentioned could have been carried out. I should like to start the institution over again. The city council has shut off our appropriation excepting $25,000, which is enough to start the basement, and which we now have. We have also an appropriation of about $250,000 for the building, but we shall not get that this year. The contagious disease hospital, which we are now building, is T-shaped. The dimensions on the ground are about 120 by possibly 100 feet. There are open-air corridors between the sections of the T. In one section of the T we have the nurses' rooms, sleeping-rooms, one or two rooms for help on each floor and two elevators. Each elevator has a compartment by itself and runs up through the different floors and connects with the outdoor corridor. Thus, in a sense, it has no connection with the contagious part of the hospital at all.

The next section of the T is divided into private rooms and what we term the observation room. The private rooms each have a separate bath, and are constructed *en suite*, so that a patient and possibly a patient's mother or some attendant can occupy them. The observation room has a few distinctive features which we found in different places. For example, each room has a Dutch door—one that is cut in two in the center; the top half opens independently of the lower half. This allows the lower half of the door to be closed in order to keep a child patient inside of the room so that he will not annoy the nurses and spread contagion by circulating through this portion of the building. It also, of course, gives more air and opportunity for observation by the nurses. Adjacent to this Dutch door is a plate glass occupying the remainder of the front of the observation room. This also gives the nurse a chance to see what is going on in the room, and makes the room a little more cheerful, and possibly makes it appear larger. A lavatory is placed adjacent to the door, the intention being to treat the patients as much as possible as they are treated in the cubicle hos-

pital. This makes it possible for a nurse to wash as she leaves the room. The lavatory is provided with a high faucet, or you might call it a spray, so that the arms can be easily placed under the spray at the time of the cleaning up; it is operated by a foot pedal. The doors of the hospital are operated by a latch so that the nurse can use her elbow in passing to and from a room if she so desires. Adjacent to this door is a space for hanging gowns. At the opposite end of each observation room (in order not to be obliged to construct separate baths for each room, making a very expensive plumbing bill) there are water-closets separated by marble slabs; across the front of each a curtain can be drawn, or, if we see fit, a door can be hung. This room is so arranged that a patient can be kept there for a period of ten days or more without being obliged to go into other portions of the institution.

The wards are in the third section of the T. These wards are small, accommodating not to exceed from five to eight patients each. In some hospitals that we inspected we found as many as fifty-one patients in a ward. This, of course, I know the physicians were not at all to blame for, but was simply due to the fact that they had not sufficient appropriation for buildings to take care of the patients. We found patients occupying both ends of the same bed, not only in one but in dozens of cases. I shall not discuss that further, however. Our wards are so divided as to accommodate from five to eight patients, as I said. They are also provided with glass screens of the kind used in the cubicle hospitals. A large number of the rooms will be so divided. The convalescents, of course, occupy the wards before they are passed out of the institution; consequently the solariums are connected with these wards. They are provided with casement windows to be closed in the winter. The solariums occupy the entire length of one end of the building, and each floor in the institution will have one, so that all the wards in the building will have access to them. They are about 10 or 12 feet wide and 40 or 50 feet long.

The second floor has been assigned almost entirely to pay patients. Being a city hospital, the institution has to take outside and pay patients as well as free patients.

A few of the general utilities, which, of course, ought to be in any up-to-date hospital, have been concentrated as much as possible in the center of this T. There are clean-up rooms opening directly into this, in which there are lavatories for the doctors and nurses; from these they must pass into the clean room and thence into the open-air corridor. These doors are so constructed that they cannot be opened from the inside; for example, when a person enters the soiled room, he cannot pass back into the institution, but must go through the clean room and open-air corridor and come out the other way. Thus indiscriminate running in and out through these rooms is prevented.

One of the other central features is a clean-up department for the patients as they go out. This constitutes a bath-room and a clean room, into which the patient takes his clothes and from which he goes into one of the elevators. It is our intention as much as possible to keep one of the two elevators clean and the other for the general use of the hospital.

Another feature in the central portion of this T is the diet-kitchen. This opens directly opposite the elevator and onto the open-air corridor through two windows; through one of the windows the food is passed in. There are no dumb-waiters in this institution, the intention being to use the elevator for bringing up food-cars. The food is brought to a point in front of the diet-kitchen and passed through one of these windows. The other window is intended for the passing out of utensils and pans which are necessarily returned to the general kitchen. It is the intention to return as few things as possible, keeping all the dishes of each floor in the diet-kitchen. When the utensils are sent to the general kitchen they pass through a sterilizer, which consists of boiling water inside of a large vat, arranged much like a dish-washing device. In the central portion of this T we also have a series of incinerators, one on each floor, above each other.

We are contemplating taking care of 300 patients in this way. The building is designed for thirteen stories. We are going to build eight stories at present and add to the building as it becomes necessary.

One other thing which seems to be quite essential, and which we found in but one contagious disease hospital in the country, is an alarm-bell. Each floor of our institution will have an alarm-bell, that is, a button covered with a piece of thin glass, which will necessarily be broken before an alarm is turned in. This alarm-bell will be rung in the rooms of the house-physician and, of course, is intended to be used in case of an emergency when a patient needs immediate attention.

Another feature which seems necessary in a city hospital is that visitors be admitted, even to the contagious department. We have provided on the center of this T a small visiting-room with plate glass between the air-corridor and visiting-room. This will permit of the bringing of a patient into the visiting-room so that a mother, for instance, can see her child without being infected or coming in close contact with it. The hospital is arranged so that live steam can be turned into several of the rooms on each floor.

The institution has four or five admitting-rooms. These are just as small as possible and are designed and finished with the idea of making the room sanitary, easily cleaned and easily fumigated. They connect directly with the elevator.

Besides the clean-up rooms on each floor, which are intended mostly for doctors' use and for nurses passing in and out and going to the dining-room, etc., there are general clean-up rooms in the basement. The basement is well above the ground so that it will be reasonably light. These clean-up rooms are for the doctors, nurses and male and female help. Here they have lockers in which their clean suits are kept and they can thoroughly clean up when they are going to leave the institution.

In the basement there is also one large diet-kitchen with all the conveniences of a hotel kitchen; there are lockers which will take care of the clothing of the entire institution, a sterilizing room and laundry. The laundry is divided into two sections.

The clothes-chute, which reaches a balcony from each floor, opens outside and has no connection whatever with the inside of the building. It is also open like a flue to the top of the building. It is so arranged that it can be sterilized and washed with hose. This clothes-chute opens into that section of the laundry into which the soiled clothes are first sent; it is separated from the clean portion of the laundry by a solid partition; sterilizing tubs, running under high pressure, are placed half in the cleaning-room and half in the soiled room, thus permitting the clothes to be placed in the water, sterilized

and taken out in the clean room; from here they are sent to a general laundry.

The motors for running the elevators, a morgue and a chapel are also in the basement. The chapel cannot be reached directly from outside; persons entering the chapel are required to pass through the office of the institution.

CONCLUSIONS

As arguments for a high building I would mention economy in the purchase of ground; good air above and freedom from noise and dust, quick access to all parts, economy in plumbing installation and in the fuel bills, saving of time of doctors going to and from the institution, ease of getting clothes to the laundry and ease of getting hot food to the patients.

For many of the ideas which I have mentioned I am indebted to the superintendents of hospitals; for example, Dr. Hornsby of Chicago, Dr. Place of Boston, Dr. Richardson of Providence and Dr. Wilson of New York.

ARCHITECTURE OF THE GREAT CHARITY HOSPITAL*

RICHARD E. SCHMIDT
CHICAGO

The large charity hospital, which must handle a great many patients at the least possible cost and give them the largest possible measure of intelligent care, should be arranged architecturally so that the physicians, nurses and the common employees can do the greatest amount of work with the least expenditure of time and energy.

These principles have guided most hospital architects and the difference in the arrangement of these great plants in different institutions is due to the valuation by architects of the respective services.

I shall try to picture the ideal institution of this character:

1. The administration department is naturally the gateway to such an institution; it is,therefore, the first building that we enter; the offices are there; the information bureau is there; all business with the outside world is conducted there. It should therefore be convenient to reach.

2. A division of the administration department of the institution is the admission bureau with its examination rooms, its dispensary, or outpatient department, its baths for the admission of patients, its clothes-lockers, and, since all clothing must be sterilized before it is put away, its clothing sterilizer. This business of sterilization is quite a technical one under modern-day methods, including the handling of steam machinery, and should be in the hands of experts. Dressings of all sorts and various materials that go to the operating-rooms and to the surgical dressing-rooms must be sterilized. These materials must go to all units of the hospital, however many there are and wherever located, and it would seem an ideal arrangement to have the whole sterilization plant at one place where it could be under the control of people who are doing nothing else but that work, so that it will be done expeditiously, economically and methodically. Thus, the whole sterilization plant would become a unit of this admission bureau.

3. The stores of the hospital, whether papers of pins or cars of coal, must be receipted for by the responsible storekeeper, and these stores are subsequently distributed to all parts of the institution. It would seem, therefore, a good plan to have the storekeeper's office and his store-rooms located at some central point, and as that officer is a part of the business administration of the institution he belongs somewhere in the neighborhood of the administration bureau.

4. Modern humanitarianism is demanding more and more all the time for the convenience, comfort and care of those unfortunate members of society who cannot help themselves, and especially is this true of the sick poor. One of the greatest factors in the comfort of these people is good food, properly, quickly and intelligently served. This means that things which should be hot should reach the patient hot, and things which are intended to be served cold should reach him while they are still cold. We have already suggested that the stores should be at a central point for better distribution, meaning ice, milk and vegetables, as well as the surgical and medical supplies and the household materials, and if to keep these stores at a central point it will add materially to the economical administration of the institution if we have the kitchen and serving-rooms near by.

We have, therefore, another unit added to those which I propose to locate centrally. In many places, especially in the large institutions of Germany, steam or electric trains carry the food from some remotely located kitchen to the various points of distribution in the wards. Experience has taught us that, while these trains are economical and efficient, as to the physical work of transporting food, they are not entirely satisfactory from the point of view of the patient, as the food does not reach the sick in an appetizing and palatable condition. It would seem that a better plan would be to have the kitchen so centrally located that the food could be rushed in an appetizing condition to even the remotest point of distribution.

5. The pathologic department of an institution has come to be recognized as one of its most important factors. The morgue is a part of this unit, with ice-boxes, necropsy rooms, which should be well lighted and comfortable as to temperature and ventilation, and, if there are students to be thought of, and especially if there is a school connected with the institution, a small, well-arranged amphitheater. As all dead bodies are brought to the morgue, it becomes necessary to place on view there the unidentified dead; for this reason a chapel also becomes a part of the pathologic unit, in which services can be held over the dead; this is especially necessary with the poor, who are the sole patrons of these institutions. Many of these cases must be passed on by the coroner; therefore, there must be an inquest-room with witness-rooms adjoining. There are perhaps some objections to having all this array of rooms in direct connection with the laboratory of pathology, but it is inconceivable that the morgue and necropsy rooms should be at a distance from the pathologic department when, as a matter of fact, the moment that breath leaves a human body that body at once becomes a pathologic specimen and, when a necropsy is to be done, is turned over to the pathologists, and since where the dead body is, there must also be the coroner, his witnesses and jurors and the chapel for the last rites for the dead.

In this day most large institutions are fitted in the various units with small auxiliary laboratories in which the simpler pathologic procedures, such as urinalysis,

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blood-counts, blood-pressures and smears of various sorts identified under the microscope, can be carried on. Many of the simple procedures, however, become complicated at certain stages and the facilities and perhaps the more expert knowledge of the central laboratory must be invoked for an efficient settlement of mooted questions. The central laboratory should, therefore, be so located as to afford ease of access from the auxiliary laboratories in the various units of the institution. Then, too, there are vaccines to be given which are kept in the refrigerators of the central laboratory because the conditions under which they must be kept are exacting and their repository must be carefully watched for correct temperatures. There are autovaccines to be made; these autovaccines must be incubated under carefully directed conditions, in carefully regulated incubators, and the technic of their preparation is most exacting; hence they are always made in the central laboratory. There are serums to be prepared and administered in almost every unit of a general hospital. In the children's department, in the lying-in bureau, in the surgical and medical wards and in the infectious disease quarters, as for instance, the antimeningitis serum and the diphtheria antitoxins.

One can see how necessary it is, therefore, that the pathologic department shall be centrally located to save time and expense in energy.

6. If there is a school or if there are lecture-rooms for large bodies of students, they should also be centrally located because often the material to be used before the classes will come from many points in the institution, and the closer by these points are, the better it will be for patients. Of course, there will usually be small clinic-rooms for small numbers of students, located in the various units, where one or two patients can be examined at a time by half a dozen students under the direction of a demonstrator or clinician.

7. It will depend on many conditions whether there shall be one operating department located centrally, or whether there shall be a number of surgical operating-rooms, each one located at a point convenient to a particular class of patients; as, for instance, one operating-room in the children's department, one in the gynecologic department and often one in the obstetric department; and in the large institutions there is also a genito-urinary department, for many surgical cases of this class are highly infectious. There is much surgical work to do even in the obstetric department—cesarean sections, pubiotomies and the ordinary post-partum repair work. In tuberculosis some of the most satisfactory treatment is now surgical; in tuberculosis of the bones and joints, for instance, and in active tuberculous processes in the intestines or pleura. There is often a certain amount of brain-work that can be done for tuberculous patients nowadays. In fact almost every department of the hospital supplies its quota to the surgical operating-rooms. The medical profession is not agreed for or against a centralized operating-plant. The cost of administration when the plant is divided into an operating-room for each class of patients is exceedingly high. Nurses and interns must be kept on duty whether or not there is work to be done. The apartments must be maintained in an aseptic and scrupulously clean condition, which takes a vast amount of work compared with the small amount of operating. Some physicians insist that it will not do to bring venereal cases into an operating-suite in which clean surgery is done and in which gynecologic cases are infected on their admission: some general surgeons object to having these cases brought into clean quarters. On the other hand, the advocates of a central operating-plant insist that no case should ever be brought to any operating-room until it is surgically clean and that the vilest venereal operation may be quite as clean as the operation for a ruptured appendix. Eventually the surgeons and medical staff of the institutions will probably be called on to determine whether their operating department may be centrally located in the interest of economy and efficiency as a whole, or whether they prefer to take the hazards incident to a large number of operating units located at widely different points and perhaps maintained under less careful supervision than would be the case in a central plant. It seems to be admitted that prompt, quick and careful transportation of patients even over considerable distances, as, for instance, from one building to another, is not trying on the patients and is not hazardous, as a rule, and in some places recovery-rooms are employed to hold patients until they are in a condition to be moved back safely from the operating-rooms to their own beds.

I have now pretty exhaustively covered the group of units that I think should be located in a central area, easily reached from all parts of the institution. The transportation for everything in connection with this layout can be done through well-lighted and well-ventilated tunnels underground, running through the basement of each building, and these tunnels can also be used for carrying the pipes for the physical service of the whole institution. The tunnel, for instance, can be 16 feet wide by 7 feet high. Nine feet of this tunnel can be used for passenger and freight service and a separate wall can be built up to separate the pipe tunnel from the other structure. The whole tunnel can be made of reinforced concrete, including the dividing wall and the roof. On each side of the pipe tunnel hooks or hangers can be placed, and if 2 feet on each side of this tunnel are taken for pipes, 4 feet will be left for a passage and workway, and this tunnel will contain all necessary pipes for heating, refrigeration, hot and cold water, electric conduits, etc., that are necessary for institution service. Arranged in this way they are easily accessible for repairs, or renewals or any changes that may be required. The passenger and freight part of the tunnel need not be elaborate. A solid concrete floor with smooth finish can be made to answer every purpose, although terrazzo or some of the monolithic or tile floors add to the appearance of the tunnel. The walls can be waterproof cement, white enameled, with a glazed finish, or they can be made of vitrified glazed tile, which is far costlier. The roof can be made of waterproof cement with a glazed finish, white enameled, or treated in any other desired way. Ventilation can be had by air-ducts at intervals, or the whole tunnel can be ventilated by running a shaft into the general ventilating shaft of the institution or by allowing the top of the tunnel to be a few feet above ground with small transom windows for both air and light.

If this general plan is carried out, elevators will be necessary in every building which communicates with the tunnel and is intended to be a part of the general service, but automatic, electric and hydraulic elevators are being made so efficient at present, (and "fool-proof") that they can be regarded as perfectly reliable. Although the cost of installation is a little higher than that of the man-operated elevators, the up-keep is low, as they do not require an elevator man to each car.

There are certain administrative units that will not be required as a part of this central area.

1. The mechanics or transmission of water, steam and electricity are so efficient that the refrigeration, ventilation and steam and electric service of the institution can be conveyed over considerable distances with comparatively little loss of efficiency. If the steam and refrigeration pipes are well covered, and if the electric service is well insulated and the whole transmission system is well installed, there is no good reason why the power-plant should not be located at the outskirts of the land area of the institution where the noise of the machinery and the smoke and dirt will not interfere with the established order of things in the institution proper.

2. The laundry is in reality a part of the power-plant of the institution. It requires immense quantities of hot water and live steam. It deals with complicated mechanism that should be under the control, operation and guardianship of the engineering department. The laundry should therefore be immediately adjoining, or a part of the same building with, the power-plant and there is no good reason why this should not be the case. It is not very much trouble and takes very little time to transport a cart of soiled linen three hundred feet more or less, or even a quarter of a mile, because large loads can be hauled. An ordinary depot truck with rubber tires and electric motor can be used for the purpose if desired. These are made most efficient now and are in use in all the large depots of the country. They move rapidly, pull large loads and are easily handled. Automatic elevator service can be employed if necessary to locate the laundry over the power-plant and excellent administration technic can be employed for the handling of soiled material into the laundry and clean material back into the building through the tunnel. In most institutions heavy canvas bags, which prevent the spread of infections, are used for the soiled linens and these serve to save the goods from rough handling at the hands of the help. Even the linen-rooms can be located in the laundry if desired, and there is no particular reason why they should not be.

3. The incinerators for garbage from the kitchen suite, which will be vastly greater in quantity than the refuse from any other single unit, can be destroyed either in the fires of the power-plant or in an incinerator near by which will feed its smoke into the regular power-plant used. In most large institutions incinerators are being installed in the walls of the slop sink-rooms of the various units, for the destruction of garbage, dressings, etc., from those units. This system of destroying garbage in the various units will grow in favor and will come finally to be universal if the makers of these mechanical contrivances can devise a plan that will not render their use too costly in gas consumption.

ABSTRACT OF DISCUSSION

ON PAPERS OF MESSRS. STEVENS, SCHMIDT, LAMOREAUX AND HORNSBY

DR. CLEVELAND H. SHUTT, St. Louis: One of the speakers made the point that the European idea of hospital construction has developed largely in the direction of spending much money in covering a large area with low buildings and not affording bed space proportionate to the expenditure for the care of patients. I believe that it is reasonable that we should care for the greatest possible number of patients with a due regard to expenditure.

Nearly all of our cities provide free hospital facilities and many of them provide some opportunity for pay patients also. Each city has a certain revenue annually, and out of that revenue various departments must be maintained. Those who have been in public hospital work have difficulty in obtaining the necessary funds for conducting and erecting institutions. Aside from the justice or injustice of the situation, it is the actual condition with which we have to deal. An institution erected on the story plan, for a public hospital, is more economical in maintenance and in the original cost.

The paper regarding hospitals for contagious diseases interested me much, because in St. Louis we are just preparing to erect such an institution. We have adopted what might be styled the unit system—a separate unit or building for each of the more important diseases, scarlet fever, measles and diphtheria, and one other building for miscellaneous contagious diseases like whooping-cough, chicken-pox and erysipelas. Each building is also arranged for sectional isolation. Our aim has been to isolate everything connected with one disease. Everything coming from a building will be sterilized before it leaves it, including the laundry, food and utensils. There will be incinerators, steam sterilizers and utensil sterilizers in a service-room at the entrance of each building.

There will be a one-story isolation building having sixteen units under one roof. It will really consist of sixteen little houses under one roof with a corridor between, affording air on all sides. We have made some improvements on the Philadelphia plan by providing a small room in each of the units for a nurse to live in, with a glass wall to give her opportunity to observe the patient at all times.

We are not providing a building for private patients, profiting by the Philadelphia experience that there were not sufficient patients to justify the maintenance of the building further as a private building. We are having rooms constructed in the main building so arranged that they can be utilized for private patients.

DR. JOSEPH B. HOWLAND, Boston: The use of incinerators in individual wards is, it seems, becoming general, although it is likely to be expensive. At the Massachusetts General Hospital all ward refuse, whether garbage or dressings, goes back to a central room and is inspected. The result of those inspections has shown that it would be expensive to allow the nurses and help to burn up anything that they thought might be disposed of in the ward.

Garbage inspection shows how much garbage is coming from an individual ward, which may indicate that the nurses are serving entirely too much food. It also gives us a clue to the fact that certain foods are not being eaten well; it gives us a hint that may be useful in the kitchen. We also find things that should not be there. Then in the disposal of our dressings we find all sorts of extravagance. If those dressings are burned, safety-pins, rubber tubing and many things that could be used again are destroyed. I cannot see any good in incinerators in the wards except in a contagious hospital, perhaps. I have had no experience with them. I think that the plant should be centralized and all that waste should be inspected before it goes to the incinerator.

DR. CLEVELAND H. SHUTT, St. Louis: We have one building with sixteen isolation units. It will be arranged so that we can isolate any disease in that building, and isolate an entire family with a nurse in the room, if desired. That is where we expect to treat the menace infection.

In each main building there will be two rooms that can be sterilized at any time. If a patient should be in the measles ward and develop diphtheria, as soon as this is suspected, he will be moved into the isolation room.

DR. E. E. MUNGER, Spencer, Iowa: I can hardly agree with everything that Dr. Hornsby has said in his paper as to remodeling an old residence to make a place in which a man can do good work. A man can do good work in a kitchen with proper assistance. There is one serious objection, however, to the establishment of many more small private hospitals, whether made by remodeling old buildings or with new bricks. We have quite a supply of small private and so-called public hospitals, and too many of them are the outgrowth of a desire to further personal and selfish (if not sometimes ulterior) interests. Some of these small hospitals are about the least concerned with the public welfare of any

quasi-public institutions with which I am familiar. Judging from common comment they are fairly remunerative on the side of selected surgical cases, while on the hospital side they are flat failures. They do not favor that professional harmony which makes for cooperation and resulting benefits. On the contrary, they foment discord, jealousy and conflict among medical men and encourage general dissatisfaction and suspicion among laymen. They do more than this: They make it easy for competitors not recognized in these private hospitals to refer their patients elsewhere to whomsoever they will, with or without a division of fees. This occasionally reacts on the proprietor of a small private hospital, who in turn is forced to the wall, or worse. Many more small private hospitals are not needed. I would not have these remarks construed to mean that there are not many capable men who are struggling to maintain hospitals for the benefit of the public. There can be no doubt about this, but these same men could render a much greater service to the public and be themselves more justly rewarded were it possible for them to serve the public through a public hospital and be relieved of the cares and anxieties incident to the business side of their undertakings. I called the attention of this section a year ago at Atlantic City to the effort we are making in Iowa to remedy some of these things and provide hospitals for the people along the lines which have been indicated showing what they are doing for the people in a corporation community.

DR. F. W. ROBINSON, Sturgis, Mich.: I live in a town of five thousand population and own a private hospital. Every physician in the town is interested in the hospital and takes a personal interest in the standard of work done and the prosperity of that institution. I am somewhat surprised that in these papers the corporation hospital has not received more attention. Most of our hospitals, in our cities especially, are located on noisy street-car lines with the idea of getting the hospital centrally located and easily reached. Now one block or three blocks or ten blocks amounts to nothing as compared to the comfort of a patient. I believe that the time is coming, and it is not far distant, when we are going to see our patients receive better care. I believe that each hospital should be so constructed that each room will open onto a screened porch, so that the bed can be pushed right out of the door onto the porch without having to be dragged along a long hall.

I disagree with Dr. Munger on the question of the small hospital tending toward poor work. I believe that the small hospital tends toward good work. Two small hospitals which I know, one in our town and one in another town, are doing good work, and instead of driving the physicians apart they are pulling them together. At one time no two physicians spoke to each other. To-day three of them own an automobile and all of them attend the meetings. Now the hospitals work together. In the other town the hospital has only been in operation one year and I can already see the benefit to that town of drawing the physicians together. If the hospital does separate physicians in a town it is because the physicians are at fault, not the hospital.

DR. JOHN N. E. BROWN, Detroit: This discussion ought not to be closed without a protest against the remarks made or the impression given by two or three of the speakers who have been advocating the skyscraper hospital. Sir Henry Burdette, the greatest living authority on hospitals in England, after having given fifty years study to this subject, is advocating a hospital city. That is to say, he believes in taking all the sick outside the city and having them looked after there by doctors and nurses, where they will have the best chance of recovery.

I am of the opinion that the German system of construction is cheaper than that of this country. Most of these spread-out hospitals are built of a cheap brick covered with stucco on the outside, because the Germans have felt that in the course of twenty years from now it may be necessary, as has been the case in the last twenty or thirty years, to materially change the construction of hospitals.

One point that Mr. Stevens brought up was the admitting unit. He showed, in the Munich-Schwading Hospital, three rooms for the admission of patients. Of course, the practice varies in Germany. In the hospital in which we are interested we are just considering the problem of the admitting rooms. I noted with interest this morning in looking over the city hospital here that is just being built by Dr. Collins and Mr. Lamoreaux that they are making an admitting department which will accomodate thirty patients. These patients will be held there for twenty-four hours before being sent on into the hospital.

Then there is the matter of sink or utility rooms being placed near the entrance to the cross-corridor. I have found nurses objecting to that. They prefer the utility rooms somewhat more at the end of the corridor, especially in private-ward pavilions, so that they will not meet so many people coming to and from the hospital near the entry while carrying bed-pans. If the utility rooms were placed more remote from the center of the corridor it would be much better.

Then the question arose about putting the utility rooms, as shown in the Munich-Schwabing Hospital, on the north side of the ward. The query arises whether or not the sun is not as necessary in any utility room or diet-kitchen or servant's rooms as it is in the patient's bedroom. These rooms are subject to infection from bed-pans, dressings, and so on. We know that the sunlight in two hours will kill the pathogenic organisms, therefore why should we not place our utility room so as to get the effect of sunlight?

DR. H. B. HOWARD, Boston: When you build the skyscraper hospital, there are two or three things that you must consider at first that were not mentioned by the speakers so far as I know. When you put a building fifteen stories high on the edge of your own lot you must recognize the fact that somebody across the street some day may put up another building just the same height. So it is not safe to build to any great height, except in the center of your own lot; then you will have the advantage of the street and the rest of your lot. It is not safe, then, to use the lower stories for patients. You will find that in the hospitals in which there are many stories the lower stories are used not for patients but for offices and for the business part and for the housing of the employees. When you get above the surrounding buildings you can count on sunlight for your patients. It is wrong in building hospitals many stories high to place the patients' rooms where they are not going to have the sunlight. In contagious wards the sun is needed more than in any other part of the building.

MR. RICHARD E. SCHMIDT, Chicago: I do not agree with Mr. Lamoreaux that buildings become cheaper as you go up. You will readily see that the same floor load in a high building is carried over and over again on a column; the same floor panel in a sixteen-story building is carried one hundred and thirty-five times for the sixteen floors, whereas if it were only a one-story building it would only be carried once. The cost of the columns is consequently increased considerably. We know that two, three and four story masonry buildings in which the walls support the floors without the necessity of introducing skeleton construction can be built at prices ranging around twenty-five cents a cubic foot, and that a sixteen or twenty story building will cost almost twice as much.

High buildings are not cheaper than low buildings of the same capacity, for if cost of building became cheaper as the height of the building increased, there might be a point somewhere in the blue sky where the building would cost nothing.

I have noticed drafts in high office buildings, sometimes strong enough to blow papers from the table and slam doors when I could not find an open window. This has been especially noticeable on holidays when practically all of the windows were closed. At such times drafts in a high building will rise from the lowest floors and out at the top as through a chimney, and I found that an open door or window in a lower story and an open window in some remote place in an upper story would be sufficient to draw air through

the building by circuitous passages. This appears to be positive proof that foul air will travel a much greater distance inside of a high building and subject more persons to its bad effects than can be the case in a low building.

MR. L. A. LAMOREAUX, Minneapolis: In regard to the cost of building, I think that when Mr. Schmidt has looked into this matter of construction he will quite agree with me. For example, in such buildings as the Johns Hopkins Hospital, in which they have but one floor and a high basement, the cost is as much, or even more, to build the basement as to build the hospital proper. Again the cost of additional land on which to spread out a hospital will more than offset the additional iron that is required to make the columns of a building strong enough to go higher. We are now building concrete office buildings here thirteen stories high that cost twenty-three cents per cubic foot and that will compare favorably in cost with a hospital building in which but half of the structure is used for hospital purposes.

SULPHURIC ETHER LAVAGE IN INFECTIONS: THE SOULIGOUX-MORESTIN METHOD

A PRELIMINARY CLINICAL REPORT OF THIRTY CASES TREATED BY THIS METHOD

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Recently, while visiting the Paris clinics, my attention was called to the use of ether lavage of the peritoneal cavity in acute infections of the abdominal and pelvic viscera. Five of the municipal hospitals were using ether as a routine measure in all laparotomies. Morestin, surgeon to the Hôpital Tenon, reported his experiences with ether at a meeting of the Société de chirurgie, Feb. 12, 1913; Souligoux, surgeon to the Hôpital de la Charité, made a similar report Feb. 19, 1913, before the same society. On May 21, June 4 and Oct. 22, 1913, additional reports were sent in confirming the earlier experiences, not alone from Paris, but also from provincial hospitals.[1]

That the Societé de chirurgie should have discussed the same subject five times in nine months speaks for the interest aroused by this at first seemingly rather startling procedure. It was my privilege to watch the *modus operandi* of this lavage, and to observe the total absence of unfavorable sequelae. I began using ether in my abdominal operations in the latter part of August, 1913, on both private and charity patients. In a series of about thirty cases observed and recorded, the clinical results have been uniformly gratifying. Dr. Bissel, pathologist to Cook County Hospital, has undertaken an experimental study on animals which will appear in a later report.

Having used ether for the past eight years as a local disinfectant in the treatment of a large series of electric burns, I had already become firmly convinced that it had no deleterious effect on cell regeneratjon. It was therefore gratifying to find that Souligoux and Morestin, working independently, had not only arrived at the same conclusion, but, going a step further, had dared to use ether on serous surfaces.

HISTORIC EVOLUTION OF THE METHOD

I cannot do better than to quote Souligoux's own words. He said:

I have used ether locally since 1891. At that time, while I was intern in the receiving-room, a man was brought in one day with both legs crushed by a heavy wagon. Both limbs were a mass of broken bones and torn tissues. I advised an immediate double amputation, which was energetically refused. Following this refusal, I cleansed the wounds the best I could with soap and water, poured an abundance of ether over them and placed both legs in plaster troughs (*gouttières*). To my utter surprise no infection occurred and the patient kept his legs.

From this time on I washed all wounds in ether and used ether in all superficial infections such as abscesses, lymphangitis erysipelas, etc. In my treatment of lymphangitis of the arm, for instance, I would wash the limb with soap and water, wrap around it gauze soaked in ether, and apply gutta-percha, cotton and bandages in order to minimize the evaporation. Several hundred cases have thus been treated with uniform satisfaction. I also, in 1891, experimentally used ether in the peritoneal cavities of guinea-pigs, without any ill effects, but did not dare experiment with man until last year.

In July, 1912, I was called to see a case of intestinal obstruction of eight days' standing. No feces or gas had been expelled for forty-eight hours. Examination revealed a complete rectal stenosis. The patient was in a condition of general peritonitis. I made an ileac incision, thinking to perform a Littré. On opening the peritoneal cavity there was free escape of gas and fecal matter. A median incision was then made and a perforation of the cecum found and closed. A general plastic peritonitis was present. Believing the patient to be moribund, remembering my experiences of 1891, and knowing that Morestin frequently used ether in abdominal operations, I poured an abundance of ether in the peritoneal cavity, carefully sponged it out and closed with two small drains. An inguinal colostomy completed the operation. The patient made a remarkable recovery, and since that time I have used ether in the presence of pus.

Up to Oct. 22, 1913, Dr. Souligoux and his associate, Dr. Marcelle, had reported thirty-six cases in which ether has been used as lavage. As much as 1 liter (quart) of ether has been poured into the peritoneal cavity "immersing the peritoneum in ether"; it is then swabbed out before the cavity is closed. In this series are 6 cases of ruptured tubal gestation, 17 cases of strangulated hernia, 3 cases of abdominal contusion with ruptured intestine, 1 rupture of stomach (ulcer) operated on twenty-seven hours after the rupture had occurred in the presence of general peritonitis, 3 cases of general peritonitis (origin not stated), etc. In this series two deaths are recorded, neither traceable to the use of ether.

Morestin's opinion is still more emphatic. He says:

I have used ether since 1901 in peritoneal infections, either as a preventive disinfectant after suppurating salpingitis or in intestinal operations in which the bowel contents may have leaked, or as a curative method in grave cases of peritonitis due to (perforating) ulcers of the stomach or duodenum, or to acute appendicitis.

Auvray[2] reports the case of a man, aged 50, with a strangulated double inguinal hernia, with perforation of the intestine and general peritonitis. He closed the perforation, poured 1 liter of ether into the peritoneum, sponged it out and closed the incisions. He stated that he had never seen a patient, in similar serious condition, heal so rapidly. M. H. Toussaint[3] refers to the method as the *merveilleux lavage à l'éther*. Broca, Témoin and Patel (of Lyons) express themselves with equal enthusiasm.

1. Ann. de la Soc. de Chir., Paris, Feb. 12, Feb. 19, Feb. 25, June 4, Oct. 22, 1913.

2. Auvray: Semaine méd., May 21, 1913, p. 248.
3. Toussaint and Morestin: Semaine méd., Oct. 22, 1913, p. 515.

One cannot help but see in this method a precious ally, and consider ether as the best antiseptic of the peritoneal cavity. While I do not wish to exaggerate the importance of this practice, it is interesting to call attention to it because it offers few inconveniences and does not necessitate special precautions.

TECHNIC

After removal of pathologic tissue, free pus is carefully wiped out; then ether is freely poured into the abdomen and is allowed to come in contact with all of the viscera in a case of general peritonitis. The viscera are literally washed in ether, hence the term "lavage" adopted by the French. As much as a quart of ether has been thus used. After having remained in contact with the abdominal organs for from two to five minutes, it is mopped out by means of gauze sponges and the abdomen is closed with one small drain. In circumscribed peritonitis, the pus cavity, having been wiped out, is filled with ether and the abdomen is closed without drainage. In pelvic peritonitis, ether-soaked sponges are applied to all involved surfaces and then two ounces of ether are poured into Douglas' pouch and the abdomen is closed without drainage. The immediate effect of ether, thus applied, is to cause a momentary capillary contraction followed by hyperemia of the viscera. There is a moderate formation of carbon dioxid in the abdomen, evidenced by a bubbling sound and the escape of bubbles from the surface of the ether. Ether is slowly absorbed by the serosa; this is proved by the fact that no change in the anesthesia of the patient has been reported to date.

In my first three or four private cases, I requested the anesthetist to stop giving ether for five minutes, after using it in the abdomen. This is unnecessary and has been discarded. The postoperative course is comparatively painless. Patients remain for from six to twelve hours in torpor, with slow, deep respirations and a strong, slow pulse. Postoperative emesis is less frequent.

Morestin emphatically declares that ether acts as a local antiseptic; that it does not damage the serosa, does not lead to the formation of adhesions and has a beneficial tonic and anesthetic action.

To the foregoing reports I can add the personal experience derived from a series of thirty cases with operation at the Cook County and Ravenswood hospitals since Aug. 25, 1913. There was no mortality in this series. There were three cases of gangrenous appendicitis with general peritonitis, four cases of localized abdominal peritonitis, two of pelvic peritonitis and one case of acute cholecystitis with adhesions in which the bactericidal value of ether lavage appeared convincing. The remaining cases, in which the presence of acute sepsis was not marked, were classed as suitable for the prophylactic use of ether. In 75 per cent. of all my cases the immediate postoperative pain and restlessness was certainly diminished; it was normal in the remaining 25 per cent. Contrary to Morestin's experience, a primary stage of excitement was noted in only one case, an interval operation for a retrocecal appendix with Jackson's membrane in which operation was performed at Cook County Hospital, Nov. 22, 1913 (Case 527784). This patient was mildly delirious for twelve hours, but otherwise made a normal recovery. In only three patients did I use any drainage; all three were cases of general peritonitis; the remaining ones were closed without drainage, 2 ounces of ether being left in the peritoneal cavity.

CONCLUSIONS

Clinically, so far as one may judge from the rather limited number of cases observed, the method is a beneficial one; no deleterious effects were observed, and, in my private cases, close personal observation convinced me that, after ether lavage, there was less pain and less emesis than is ordinarily encountered in laparotomies. That ether does not injure serous surfaces must be conceded. Souligoux satisfied himself on this point in 1891, but unfortunately did not publish the result of his observations; clinically, no adhesions have resulted from this method. Should the combined experimental and clinical results coincide, it would seem to me that ether lavage will have to be recognized as a valuable adjunct to our surgical technic.

31 North State Street.

AZOTURIA (DIABÈTE AZOTURIQUE)

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Robert Willis[1] observed "a peculiar morbid state of the renal secretion characterized, not only by a considerable increase in the quantity of fluid elaborated, but a great increase in the quantity of urea it holds dissolved, in some cases to be permanent and habitual." To quote him further, "This is another of the morbid states that has been described under the name of diabetes or diabetes insipidus. I believe it to be the common precursor or recent inquiries have shown it to be the general attendant of mellitic diabetes, as well as the state into which that formidable disease passes under the influence of treatment of a certain kind." Although the preceding was advanced in 1838, practically nothing is known of the condition in America. The library of the New York Academy of Medicine does not contain mention of it in a work of any kind or even a reprint on the subject by an author in this country, and such as there is on hand, which is meager and scattered, has been contributed entirely by the French and English writers. When one considers the broadcast interest in metabolic disturbances in this country and the fact that these cases exist among us, this seems strange.

According to Allbutt and Rolleston,[2] the term "azoturia" was applied originally by Prout to a condition of urine characterized by the presence of urea in excess, though Prout did not distinguish between the increase of urea and the other solids. Although he pointed out that it often preceded diabetes mellitus, he obtained little clue otherwise to its nature or pathology.

After the contribution of Willis, the condition was studied by Falk, Bouchardet, Lancereaux, Bouchard, Lecorché, Lasègue and others, an excellent monograph on the subject being contributed by Demange[3] with a review of the publications dealing with the condition.

CLASSIFICATION

Robert Willis divided the cases of diabetes insipidus into three groups:

1. Cases of hydruria. Those attended with an excessive discharge of aqueous urine, in which the solid matters are hardly affected.

1. Willis, Robert: Urinary Diseases and Their Treatment, London, 1838, Section 3, p. 18.
2. Allbutt and Rolleston: System of Medicine, Vol. III, Diseases of Obscure Origin, London, 1909, p. 226.
Delaunay: Gaz. hebd. d. Sc. méd., April, 1913.
3. Demange: Paris Thesis, 1898, Dechambre's Dictionary, Article on Azoturie.

2. Cases of anazoturia. Those attended with a copious discharge of urine with a deficiency of urea.

3. Cases of azoturia. Those in which the excessive discharge of urine was accompanied by a superabundance of urea.

The preceding classification recognizes azoturia as a subdivision of what has long been designated as diabetes insipidus, and it is now recognized with azoturic conditions that this classification has outlived its day and cannot be considered as important in this connection. The same may be said of Ballet's classification offered in his discussion of Mathiew's case of diabetes insipidus in an hysterical patient (simple polyuria, without azoturia or phosphaturia), namely:

1. Simple polyurias, with stigmata of degeneration (physical and psychical).

2. Simple polyurias, with stigmata of hysteria, without stigmata of degeneration.

3. Azoturic polyurias, with stigmata of hysteria.

These are the only classifications on record in which the term "azoturia" appears, and as a proof of their deficiency to cover the subject on hand may be mentioned the extreme yet more appropriate and descriptive term that the French have added, namely, *diabète azoturique*.

In so far as the strict azoturic conditions are concerned, and on the basis of my study of the condition, I would suggest the following classification:

1. Physiologic azoturia.
2. Azoturia simplex.
3. Azoturia gravis.

This eliminates the confusing term of diabetes to which the condition in its medical form may be considered somewhat allied, and gives to us terms applicable to practical medicine.

PHYSIOLOGIC AZOTURIA

For whatever reason an increased oxidation takes place in the tissues of the body, an increased output of the nitrogen-bearing substances in the urine is liable to occur. These include the effects of cold, excessive exercise, sometimes the emotions, physical pain, repeated pregnancies, prolonged digestion of protein foods and the like. While the term "physiologic" can hardly be applied, we can herewith also include those conditions in which an increased output of nitrogen in the urine accompanies certain abnormal states of the body, such as continued fever, some of the acute lesions and functional disturbances of the nervous system, physical pain, and so forth. These conditions are only relative, however, and need not be presented further.

AZOTURIA SIMPLEX

What characterizes this form of the condition is the absence or mildness of the constitutional symptoms, its more acute or limited course, the fact that polyuria is not present or only slightly so, and the output of urea and the phosphate only moderately above normal. It is found in both children and adults, but mostly the latter. Emotions, traumatism, suffering from painful affections and excessive indulgence in food and alcohol are factors in its production. Raymond reports a case lasting thirty-two days with recovery, in which the symptom of polyuria was 2.5 to 5.5 liters, with a daily output of 50 gm. of urea. One of these simple cases may, nevertheless, develop polyphagia, marked azoturia, polyuria and other symptoms, the condition gradually deepening into the grave form. Comby[4] reports such a progressive case with death in three months, but probably this was the grave form at the beginning. In the majority of the instances, however, if the condition has been recognized and treated properly, it subsides after some days or weeks of time, and a complete recovery takes place. Such milder cases are also seen in lesions of the brain and syphilis, and, as Bouchard has pointed out, in the course of diabetes mellitus, when it is an added, independent factor, rather than a related symptom.

It seems reasonable to assume that a long-standing condition of what in its course may be considered as physiologic azoturia may deepen into what is mentioned as azoturia simplex. Such a case may then intensify with the production of the prominent symptoms of the graver form and the issue close with death in the course of time. Like the manifestations of glucose in the urine in diabetes mellitus, the increased amount of nitrogen in azoturia may be more or less transitory at the start, then be more steady and larger in quantity and finally the constitutional symptoms of the condition develop, the case then being of the permanent and grave form. Thus it is that while the condition in its course may remain identical throughout in an individual case, a relationship between the different forms must be kept in mind as a possibility. What may be considered a case of azoturia simplex should make one hesitant in the prognosis, for, while the diagnosis of such a degree of the condition can only be fixed on the severity of the symptoms and the course under treatment, a progression may nevertheless take place. Fortunately, this is not so common as the continuation of a uniform degree.

AZOTURIA GRAVIS

This is the form to which I would particularly draw attention. It is found mostly in male adults of nervous temperament, between the ages of 40 and 45, and those suffering from lesions of the brain and spinal cord, syphilis, painful affections, long-continued use of alcohol and overindulgence in nitrogenous foods. Bouchard was enabled to demonstrate disturbance of the nervous system as the primary cause in three cases; one patient had concussion of the brain, and two cerebral tumors of syphilitic origin.

The primary symptoms are polyuria, polydipsia and especially polyphagia. The polyuria is the consequence of the polydipsia, and if the excess amount of the urea is swept out by fluids the organism defends itself by the polyphagia. There is a noticeable loss of flesh accompanying an exaggerated appetite and thirst. It is the prematurity of the emaciation in its striking course that should direct one to the suspicion of this condition and to the examination of the urine. The absence of sugar should then suggest making an estimation of the quantity of nitrogen or the urea-nitrogen at least. Complications, such as a certain resemblance or analogy with scurvy, various neuralgias, disturbance of the special senses and uremia may arise. Thirst is usually less severe than in diabetes mellitus. An exaggerated and constant loss of nitrogenous material (mostly represented as nitrogen in the urine) is always present. The condition is characterized by the general symptoms of polyuria, polydipsia, polyphagia, abundant sweating, loss of muscular strength, hemorrhages of the retina and vitreous, while in the end the appetite is impaired, emaciation becomes excessive and cachectic edema may make its appearance. Death results through this extreme malnutrition or by way of some complication to which phthisis and gangrene should be added.

4. Comby: Diabète azoturique: mort par complications pulmonaires, France méd., Paris, 1882, ii, 364.

the peritoneal cavity.

on Azoturie.

The symptoms usually begin insidiously (but may be abrupt) with a feeling of languor and an unaccountable weariness, especially in the loins and thighs. The tongue is usually pasty and foul, and the edges of it red and irritable. In such an early case the increased craving for food may alternate with complete anorexia. As the case deepens, the gastric disturbance increases and the tendency to anorexia and thirst becomes more prominent. The weariness in the loins and legs is accompanied with actual pain usually on both sides, although it may be only in one loin and strongly simulate renal disturbance. Diarrhea may exist, which contributes to the malnutrition. Sexual impotence and nervous phenomena are usually prominent. Boils may appear, not the large ones of diabetes mellitus, but those of the size of a hempseed with inflamed bases and yellow heads; these come in crops. The skin becomes harsh, dry, and wrinkled from the loss of adipose tissue. It is at this stage that the suspicion of diabetes mellitus becomes keen, and a more thorough examination of the urine is made and the excess of urea with the absence of sugar detected. Toward the end, the respirations become difficult, the pulse weak, and death may occur in the course of the complications.

The disease may take several years to reach its end, and an interesting feature is that near it the azoturia diminishes and may even drop below normal. The principal symptom on which the diagnosis is made is the azoturia, which requires an examination of the urine. The large amount of urea present explains the thirst which is the necessity to dissolve the urea to flush the tissues.

At this point the pathology of the condition may be taken up. There are two main theories. First is a disturbance of the nervous system, and second a disturbance of the liver function. The first cannot be argued away safely, because in most of the cases it is present. This is also suggested in the emotional cases, concussion of the brain, and cerebral tumors of syphilitic origin. Lamy suggests the possibility of a circumscribed area in the floor of the fourth ventricle as a cause.

Just why it is that these cases are encountered in well-to-do men leading sedentary, busy, anxious lives, who for the most part live neither wisely nor well, is not known, but there is no doubt that this strongly suggests some metabolic cause, and the condition continuing, the nervous phenomena ensue, the azoturia not being suspected. This leads us to the second metabolic theory, and some good argument may be presented in favor of it. It is unfortunate that the chemistry of the tissues in the production of urea from its intermediate products is not well understood. Lecorché, with Bouchard, believed that the excess of urea comes from the tissues which are consumed by faulty assimilation and not from the foods. Difficulty arises in regard to the why and wherefore of this nutritional disturbance, and, although the action of the nervous system may be the probable cause, it remains to be shown how it acts. Allbutt suggests that while the pathology of the disorder is by no means clear, it appears to be due to increased metamorphosis of the tissues rather than to protein food. This is suggested in that while a restriction of the protein food effects a certain reducing of the amount of urea, the result is never considerable, and, of couse, a purely carbohydrate diet has very little influence in restricting the amount of urea.

With the knowledge of the activity of the liver in the chemical transformation of certain substances and particularly toward the rapid elimination of materials which cannot be utilized, especially the nitrogen radicles derived from the excess of protein foods, one's interest in the rôle of the liver in this connection as influencing nitrogen metabolism is immediately aroused. It is now generally accepted that the albuminoids with the carbohydrates and fats are utilized in the formation of glucose, and it is a suspicion of mine that in the transformation of the products elaborated in the stomach and intestines into substances which pass into the blood for liver regulation, storage and elaboration, the most plausible theory for the condition exists. Richet illustrates: "With the exception of the action of the fibrin, the coagulability of the blood and the uropoietic function, not much can be said of the action of the liver on nitrogenous substances." We are still arguing the disputed theory of the proteins of the serum being synthetically formed by the intestinal mucous membrane from the nitrogen products derived through digestion, which is a direct contradiction to the existence of a nitrogen function of the liver. One is not inclined to agree with Abderhalden in this theory, because it implies a refutation of the chemical transmutation in the formation of urea and the splitting up of the ammonia contents by the liver to bring this about. It is further confusing when one considers that the alimentary albumins are subjected successively to different proteolytic ferments before they are broken up into amino-acids. Delaunay seems to have shown that the amino-acids are not utilized in the synthetic formation of the albumin of the blood-serum by the intestinal mucosa, but pass directly into the portal vein and are carried into the liver as hexoses. The liver probably then plays a triple rôle in its action on these hexoses. It decomposes the amino-acids not utilized by the organism, either because they are not easily absorbed or because they are formed in excess. The amino-acids are thus transformed into urea and ammonia. The carbon radicles, on the contrary, which present a source of energy, are utilized. Whether or not the liver tissue stores up any quantity of amino-acids for fasting periods, is still somewhat of a question, but there is now a strong reason to believe that it does send quantities of amino-acids into the circulation to be utilized by the tissues, and that in so far as the amino-acids in the blood are concerned, the liver regulates it as it does the carbohydrate radicles.

To bring these few facts together in an etiologic way in connection with the subject, we can all agree that in disease of the liver, amino-acids are frequently removed in the urine; in fact, this is one of the surest signs of hepatic insufficiency. Adding to this the analyses of such matter as I know of pertaining to the subject, I am strongly inclined to believe that the condition is hepatic in origin in which the pancreas also plays an important part, because we know that the pancreas has to do with transformation of the nitrogen bodies as well as the carbohydrates.

The diagnosis is made by the examination of the urine, for which a twenty-four-hour specimen is required. The amount excreted is usually about 5 liters, sometimes running as high as 20 liters. The urine is of a light or dark color, of a very pronounced acidity, and the specific gravity often exceeds 1,040 or even 1,050. A feature of the urine is its promptly acquiring an ammoniacal odor caused by the large amount of nitrogen-bearing substances being broken down by bacteria. The chemical analyses disclose an absence of glucose and albumin, although an albuminuria of a low degree may exist in the beginning.

When the specific gravity is low, between 1.002 and 1.010 for instance, the diagnosis of diabetes insipidus is suggested, while, of course, when glucose is present, the diagnosis of diabetes mellitus is in order. A point to remember is that in nephritic polyuria one always has an albuminuria with casts together with cardiac disturbances, and the manifold manifestations of arteriosclerosis and uremia. Usually in the azoturic conditions the quantity of urine increases during the day, and at intervals of some hours after the meals; the latter depends on the character of foods eaten.

The main feature of the urine is the azoturia present, this meaning an excess of urea, uric acid, and nitrogenous extractive substances. In the course of twenty-four hours the urea output is between 40 and 150 gm. (normal amount, 25 gm., although lately this has been considered too high, and 16 gm. is now considered as the upper amount), the uric acid reaches 9 gm. (normal amount, 0.7 gm.), the nitrogenous extractives of creatinin and uroxanthin reach and exceed 70 gm. The excess also involves the chlorids and phosphates, the first of which may be between 15 and 30 gm. (normal amount, 13 gm.), and the latter represented in phosphoric acid from 5 to 6 gm. (normal amount, 3 gm.). In the absence of facilities to make the nitrogen partition, urea may be taken as the diagnostic index of the condition. Of course, the accurate methods of analyses of Mörner-Sjöqvist and that of Folin are advised, but when these are not practical, the ordinary urinometer multiplying the quantity of nitrogen obtained from 1 c.c. by the number of cubic centimeters of urine voided is sufficient for clinical purposes. The presence of a moderately increased amount of urea suggests the simple form, while the presence of a large amount with the characteristic general symptoms suggests the grave form. The Ehrlich aldehyd reaction, which is uniformly positive, should also be noted. It is advised in all cases of diabetes mellitus, phosphatic diabetes and even diabetes insipidus, that urea estimations be made, because the case may be a combination one, and when present with glucose it is much more serious. At this point it may be mentioned that while mellitic diabetes cases are common, phosphoric diabetes, or better phosphaturia, is less common, and azoturic diabetes, or better the forms as I have classified them, the rarest of all. It is important to keep in mind that azoturia may exist with diabetes mellitus, in which instance the prognosis is much worse than it would be when either condition exists alone.

The treatment suggests that more urea estimations of urine should be made in a general routine way, for by it all cases of the simpler forms would be suspected early enough and successfully treated. The condition established, the treatment is a judicious management to prevent further mischief. An absence from work is essential, and a sojourn in the country may be sufficient for the simpler forms without further treatment. The patient should arise late and go to bed early so as to soothe the nervous system. In order to limit the loss of urea the avoidance of movements and fatigue must be recommended. The bowels should be kept well opened, and a tepid sea-water shower or bath and a good toweling has been recommended by Ralfe. While care must be exercised not to let the temperature be too low, it is important not to let the patients be relaxed by overheated rooms or clothes which are too heavy.

While on the one hand it seems advisable to influence the amount of nitrogen in foods, on the other, it has not been so practical as placing the patient on a general diet. The main point in the dietetic treatment is not so much to control the nitrogenous element as to control all quantities of food so that the tissues are not oversupplied and the patient still is well enough nourished. This plan controls the general symptoms as well as the urinary ones, but is somewhat short in the repair of the loss of tissue, but if the patient recovers sufficiently, it is warranted to increase the quantities of nitrogen as well as the carbohydrates and fats — this means more food.

Some difference of opinion exists as to the value of different drugs, although most authorities agree that valerian answers the best purpose. Bouchard employed it with good results in the form of the extract in gradually increasing doses, beginning with 8 gm. in fractional doses during the day, and increasing rapidly to 20 to 30 gm. in twenty-four hours. Others recommend the use of arsenic, potassium bromid, belladonna and hyoscyamus. It is probable, however, that the best are valerian, opium and arsenic.

The prognosis in the various forms mentioned is according to the degree, the length of time the condition has been standing, and presence of complications. When properly treated all of the cases of the simple form are cured, while in most of those of the grave form the patients are relieved of their symptoms so that they can continue a number of years of life. In the presence of complications, however, but little could be expected. This means an extreme extent of breaking down of tissues and usually marks the threshold of the end.

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THE TREATMENT OF PELLAGRA

AN OPTIMISTIC SURVEY OF ITS PRESENT STATUS

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It is admitted at the outset of this study that the etiology of pellagra is unknown. The antizeists, or those who do not believe in Lombroso's theory of a toxic cause existing in spoiled corn, corn products, or perhaps carbohydrates, seem to be somewhat in the ascendancy just now, though there are certain historic and sociologic facts that have not been disproved which link together pellagra and maize. The theory that the disease was produced by the ingestion of semidrying edible oils progressed only to the nebulous stage, and then apparently vanished into thin air. Sambon has practically forsaken his hypothesis concerning the *Simulium reptans*, and at present the accusing finger of the Thompson-McFadden Commission for the Study of Pellagra seems to be pointing toward the *Stomoxys calcitrans*, or stable-fly.

No constant or distinctive pathologic changes have been noted in this disease, though the complex of symp-

toms seems to rest on certain trophoneuroses similar to the degenerations incident to senility.

Many earnest research workers are investigating this problem, and its early solution is hoped for. Meanwhile, the pellagrins are clamoring for therapeutic relief; and the wavering theorist, who hesitates to minister to these sufferers because not all these etiologic and pathologic inquiries are clearly answered as yet, as well as the dismal pessimists who can see nothing of light ahead—these should exercise their doubtful talents in other fields, leaving the warfare to the resolute and courageous spirits who are willing to fight, even if much of the battle-field is as yet shrouded in darkness. Malaria was treated with a measure of success before Laveran demonstrated the *Plasmodium malariae*, and bacillary dysentery was fairly well managed before Shiga determined the cause. The treatment herein advanced, embodying suggestions from several observers of recognized standing, and built on my own experience in the care of over six hundred cases, is yielding satisfactory results and rests on the four basic supports of hygiene, diet, drugs and hydrotherapy, buttressed with a hopeful and helpful psychotherapy.

HYGIENE

The hygiene of pellagra is similar to that of other exhausting diseases, with two exceptions. The first is that alcoholic beverages in any amount seem to be highly detrimental. While an occasional alcoholic stimulant may be of questionable aid in conditions of extreme weakness, I would hesitate to give a favorable prognosis to any pellagrin of convivial habits. I make this statement confidently, though it is at variance with the opinion of an estimable medical friend. The second exceptional hygienic precaution is that sunlight, direct or reflected, should be avoided during the spring and summer months; and danger also lies in becoming overheated. The actinic rays have a peculiarly irritating effect on the skin of pellagrins, which is seemingly most marked in early spring. Exposure to these rays or to radiant heat from a stove or furnace will, in a pellagrin, bring out an erythema, or will renew one that has been apparently healed. Pellagra flourishes in hot weather and subsides in cold: consequently the sufferers fare much better if they can keep in a cool environment.

DIET

In the diet, I prohibit corn-bread and corn products, unless I know positively that the corn is fresh and has undergone no "heating." Until the "zeist" theory is thoroughly disproved, we owe our pellagrins this precautionary measure.

As to other dietetic measures, we should remember that in this malady the gastro-intestinal manifestations are the expression not of a disease primarily localized in that tract, but of a centralized irritation, plus the effect of toxins eliminated through the gastro-intestinal mucosa. As demonstrated by me four years ago, the early diarrhea is mainly of central origin, and to some extent compensatory. It therefore does not require a too limited regimen, nor does such seem to aid the disordered bowels. Woody vegetables and those yielding a large amount of residue are mechanically contraindicated at any time diarrhea is present, but care should be taken to replace them with other nourishing food. I have also demonstrated that the flesh proteins are especially well borne. Tender broiled steak, roast beef or mutton may be allowed once or twice daily; or, if the mouth is too sore to allow chewing, beef or white meats, either scraped or ground, may be substituted. Eggs are generally permissible, though it is well to use only the whites if flatulence exists.

Sweet milk is valuable when it agrees with the patient, though it rather often causes flatulence and distress. The practice of advising the daily consumption of immoderate amounts of milk and eggs, without determining the digestive ability of the patient, is reprehensible and unscientific. Fresh or artificially soured buttermilk is nearly always suitable.

When constipation is present, oatmeal, tender vegetable purées, thoroughly baked Irish (not sweet) potatoes, or cereals with little sugar, will aid intestinal peristalsis. During the whole course of pellagra the invalid must be nourished to the limit of assimilation, and it will generally be found that the gastro-intestinal tract in this disease will bear and care for more aliment than when similarly inflamed from other disorders.

DRUGS AND HYDROTHERAPEUTIC MEASURES

Hypodermically, I use the ampules of iron arsenite solution (16 minims) and sodium cacodylate solution (¾ grain of the salt), on alternate days, injecting them under careful aseptic precautions, and giving one daily for about two weeks. After that I give an ampule every other day, still alternating the ampules. After the acute symptoms seem to be controlled, I continue giving two injections weekly (still alternating the ampules) for several months. Sometimes, when the patient is anemic and quite nervous, I substitute for the two previously-mentioned ampules the ampules of the green citrate of iron (1 c.c.) and glycerophosphate compound (1 c.c.), alternating as before. I never use the large doses of sodium cacodylate.

Internally, I employ a combination of saturated solution of potassium iodid and Fowler's solution, in the proportion of five of the first to three of the second. Beginning with 5 drops in water, three times daily after meals, the dose should be increased one drop each day, until symptoms of arsenical saturation are manifested. This generally appears when 20 or 30 drops are being taken. When there is puffiness about the eyes on arising, I stop the drops for two days, beginning again at the minimum dose of 5 drops, and increasing as before. This procedure I continue until the eruption and sore mouth are abated, and then continue it in 8- or 10-drop doses for several months. Should there arise a gastric or intestinal intolerance, which is occasional complication, it may be necessary to reduce the proportion of Fowler's solution to one or two in eight parts, instead of three.

For the frequent diarrhea I have obtained satisfaction from bismuth betanaphtol and resorcin, with milk of bismuth as a vehicle. This failing, I give 15 grains of tannigen after each loose action, or, as a last resort, powdered opium. I have also found useful a colonic injection on alternate days of plain coal-oil (kerosene oil). One pint should be injected, with the patient in the knee-chest position, and allowed to remain from a quarter to three-quarters of an hour. Two to four injections are usually sufficient.

For the infrequent constipation, either castor oil, liquid petrolatum, phenolphthalein or enemas will serve, drastic cathartics being inadmissible.

For the sore mouth, a solution of thymol, 1 grain to the ounce of water, a little alcohol being used as a solvent, will generally prove sufficient; or a 25 per cent. solution of boroglycerin. For the stomatitis and glos-

sitis, a daily application of a silver nitrate solution (20 grains to the ounce of water) is in most instances efficacious.

I have ceased stomach lavage, except in rare instances, when a great excess of sticky mucus constantly arises.

The simple erythematous rashes or even the sloughing conditions in the hands and feet may be benefited or cured by the bland ointments, such as zinc oxid, or a 5 per cent. boric acid. Raw or weeping surfaces are soothed by a lotion of calamine and zinc oxid in lime-water, to which may be added a little rose-water or other pleasant adjuvant.

For the intense burning in the hands and feet, so often and bitterly complained of, either ice-cold compresses of a mild solution of mercuric chlorid, phenol (carbolic acid), 60 grains to the pint, applied at frequent intervals to the unbroken skin, or baths of hot mustard water are indicated. Two- or 3-grain doses of acetanilid, or 5-grain doses of acetylsalicylic acid, when the heart action is fairly good, will greatly relieve the neuralgic pains, while brisk rubbing with petrolatum to which has been added capsicum or menthol is advisable for the pseudorheumatic pains in many joints and muscles.

After the erythema has subsided, leaving a rough and harsh surface, alcohol rubs at frequent intervals will facilitate the disappearance of this horny layer. I do not favor salvarsan.

Transfusion of blood from either healthy donors or healed pellagrins is still an available method in selected cases, but its difficult technic and other obstacles will probably prevent its general employment. Drainage of the gall-bladder, appendicostomy and other surgical measures have their advocates, but are seldom, if ever, really expedient.

Special treatment of the purely mental symptoms cannot be covered here. Should such symptoms predominate, deepening into melancholia, or lapsing into dementia, the patients should be placed in an institution for the mentally sick, as it is unwise, because of their varying or suicidal moods, to attempt their care at home.

Hydrotherapy has in many instances proved so beneficial in pellagra that some form of it, such as hot or cold baths, simple or medicated douching, packs, moist or dry rubs, accompanied by special massage, may be employed in nearly every case. Increased oxidation of the tissues, more rapid elimination, greater metabolic activity, sharpened appetite, improved digestion and assimilation, and a noticeable tonic effect on the whole living organism follow their use.

PSYCHOTHERAPY

Just now, when a wide-spread pellagraphobia prevails, when the unhappy victim finds most hospitals, hotels and boarding-houses closed to him, and many nurses unwilling to attend him, can we wonder that the knowledge of its presence carries distress of mind? Much of the fear of this disease is due to unwise words of physicians, perhaps lightly spoken, but deeply impressive and harmful to the already perturbed pellagrin. It is wrong for the physician, in any way, to add to the anxiety of the patient, and every legitimate effort should be used to encourage and cheer him. He should be assured that he does not endanger his family and friends, that many cases are permanently cured, and that energy and perseverance on his part will greatly brighten his prospects. Though pellagra is always a grave malady, an unfavorable prognosis, except in extreme cases, should not be hastily given.

"Apparently some regenerations may take place in diseased organs of highly organized type, if the patient's condition is kept up to the highest point of nutritive efficiency" (Walsh). I have in mind a young woman who has been well for over two years, but whose condition at one time seemed to be hopeless; and this taught me a salutary lesson. Certain compensatory influences may be begun and continued by drugs and other material aids, but more often they are hastened by conserving the bodily and mental tone during the prolonged period that Nature demands in which to educate new centers and adapt herself to the loss of others.

I have in several instances seen pronounced psychoneuroses seemingly arise from discouragement, from the sluggish conditions which develop in the bodies as a result of lack of hope, and from the refusal to take air and exercise which accompanies despair. In pellagra, as in many other complicated diseases, many intercurrent ills arise at frequent intervals. Many of these can be promptly alleviated, and a much more sanguine frame of mind may be induced even if the main lesion is untouched. As one writer has well said, "Though nothing can be done for the disease, much can be done for the patient." In such conditions the Eddyites, the mental healers, and the quacks get their occasional spectacular results.

The belief is reasonable that by suitable suggestions we can delay, if not arrest, nerve degeneration, for a buoyant body and hopeful mind present a firmer bulwark against cellular destruction. Therefore, while recognizing the easily managed intercurrent ills and promoting comfort, the physician and those around the patient should try to inspire courage and optimism in him, so that the higher psychic centers may exert their untrammeled influence over the lower centers.

PROGNOSIS

My experience in the treatment of over six hundred cases has taught me that there are four classes in which the prognosis should be extremely guarded: persons over 50 years of age; alcoholics; patients with marked mental symptoms, evidencing greatly damaged nerve centers, and those intellectual weaklings who capriciously veer from one plan of treatment to another.

On the other hand, if the patient is under 50, and has sufficient intelligence and perseverance to adhere to a fixed line of treatment, and will faithfully cooperate with the physician, a permanent cure may be expected in the majority of cases.

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Athletics and Cardiac Hypertrophy.—From the data presented it is clear, I think, that severe athletic contests cause marked cardiac hypertrophy in individuals who are strong enough to take part in them. The cardiac hypertrophy gives greater capacity to stand prolonged severe muscular exertion, but is usually associated with some signs of functional disturbances. About the ultimate result in the life of the individual of an athletic heart acquired in youth we know little. For ordinary vocations and avocations an overlarge heart can be of little use. Unless it is kept exercised it will assuredly undergo detrimental retrograde metamorphosis. Furthermore, most pathologists believe that the musculature of a hypertrophied heart is always somewhat diseased and less resistant than that of the normal heart. The degree of myocarditis varies in different individuals.—C. R. Bardeen, M.D., *Wisconsin Med. Jour.*

THE PLAGUE OUTBREAK IN PORTO RICO

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On June 15, 1912, bubonic plague was discovered in Puerta de Tierra, a squalid district outside the old walls of San Juan, Porto Rico. The positive diagnosis was made three days after the first cases were found and so reported to the acting governor by the assistant director of health and the representative of the United States Public Health Service. The governor promptly proclaimed the existence of plague, thus making a record of promptness and honesty.

As was natural, a panic ensued, and the roads leading from San Juan were filled with all manner of vehicles rushing away, many not knowing where. All supposed that a quarantine would be imposed and that no one would be allowed to leave the city, which accounts for much of the rush to be away. Indeed, many in high office strongly urged military cordons, and burning of the districts in which cases occurred, radical measures both useless and severe, which the calmer minds successfully opposed. While the panic was expending itself, those who remained at home, having been instructed to clean up, began throwing their rubbish into the streets, revealing enormous stores of hidden junk and trash. No one imagined that behind those nicely painted walls were such quantities of waste material. The streets were almost impassable within a few hours, although every wagon and cart that could be hired was at work, and every motor-truck was working night and day. This continued for nearly a week, while on the open lots several bonfires, covering a quarter of an acre each, burned day and night. Sixty large motor-trucks of this stuff in one night were taken from old San Juan, which has about 15,000 inhabitants. Seven truck-loads of rubbish were taken from one house, and so on, until one wondered where it all came from and if it would ever end; but both the fright and the fires did finally diminish, so that at the end of a week people were coming sheepishly back, and the expert sent by the United States Public Health Service was quietly at work on the eradication and prevention of spread of the disease, while the Department of Sanitation of the island was caring for the sick.

Bubonic plague is a disease carried by rats and but rarely transmitted by human beings, so the work of eradication was done by killing rats, improving buildings so that they would be poor rat harbors, and by preventing the rats from traveling to other places. The quarantining of persons, the restriction of travel and commerce, spectacular but ineffective methods against this disease, were not used. The business-like and scientific methods employed were productive of a result both brilliant and gratifying, for in ninety-two days after the first case was discovered the disease was over, and although rat-proofing, and the catching and examination of rats still goes on, there is no plague in San Juan, either in human beings or in rats. In all, there were fifty-six cases with thirty-six deaths from this disease in Porto Rico.

Where did the plague come from and how did it reach the island of Porto Rico? While busy with suppressive measures and in preventing the disease from going to other points of the island and to the United States, this was what the quarantine authorities were constantly asking themselves. There is and has been for several years bubonic plague in Venezuela, and the people naturally considered this the source. The United States Public Health Service officers, although admitting that no quarantine restrictions that do not absolutely stop commerce can give absolute protection, did not believe that Venezuela was to blame. They knew that the Public Health Service keeps an officer in Venezuela, who personally watches the ships that are to sail for Porto Rico, who goes on each one from port to port and fumigates each vessel before she sails. They knew that these vessels were constantly watched at San Juan, so that while commerce moved with but little hindrance, the chances of any Venezuelan rat landing in Porto Rico was exceedingly small. It was consequently believed that plague infected rats had come from some place where the disease was not recognized or where its existence was denied.

Many ports were suspected only to be vindicated, until Dr. Juan Guiteras, formerly an officer of the United States Public Health Service, and now director of health of Cuba, suggested the Canary Islands as a possible source, saying that five or six years ago there was an epidemic in Santa Cruz de Teneriffe, which some said was plague. As it is well known that epidemics of human plague will subside and become endemic, existing in rats for years, unless intelligently and persistently combated, the time elapsed was no argument against this theory, so an investigation was made with the result that it may now be said that in all probability plague came to Porto Rico from the Canary Islands.

Not only have many disinterested persons testified to the existence of plague in Santa Cruz, but no less a person than Dr. L. Comenge, royal delegate to investigate the epidemic in that city in 1906-1907, made a report to the Spanish government in which he states that the disease was plague and that it existed in rats and human beings, sixty-nine persons being stricken. He also reports that while knowing it to be plague he suppressed this knowledge, apparently believing that the tranquillity and commerce of the Canary Islands was more important than the health of the world. In this policy of suppression the authorities to whom the report was submitted must have agreed, for the report was not made public or the presence of the disease announced.

There is, however, other interesting evidence. About two weeks after the discovery of plague in San Juan, a case was discovered in Havana, Cuba, then another and another, in all three and then no more, bespeaking both a light infection and brilliant work. The Atlantic and Gulf coast ports began to put themselves in order and to catch and examine rats, with the result that one infected rat was found in New Orleans, so that the warning from Porto Rico saved that port and probably many more. Then there was some plague among the rats in Liverpool, and that was stopped in time. There is evidently some connection between these events, for the steamers of one of the Spanish lines after making many Spanish ports, one of the last being Santa Cruz de Teneriffe, where they take onions and potatoes in crates and baskets, go direct to San Juan (plague June 15, 1912), next they go to Havana, Cuba (plague July 4, 1912), next to New Orleans (plague-rat found July 27, 1912), and then some of these steamers go to Liverpool (plague-rats found August 1 and 30, 1912). This evidence is circumstantial, but with the knowledge that plague existed in Santa Cruz de Teneriffe in 1906 and 1907, the conclusion is evident that plague came to San Juan, Porto Rico, carried by a rat from Santa Cruz, on

a Spanish steamer, probably in a crate of onions or potatoes, and that the same line of steamers that brought the disease to Porto Rico carried it on to Havana and probably to New Orleans.

Quarantine is at best a compromise that tries to give the greatest amount of protection with the least amount of obstruction. It must rely on information as to the health of other places, and when such information is false, a non-prohibitory quarantine is powerless.

Honesty and fair dealing in questions of epidemic diseases is necessary if international sanitation is to advance, and if such histories as those of plague in Porto Rico and Cuba are not to be repeated.

IS THERE A TOXEMIA REFERABLE TO THE EATING OF CHESTNUTS?

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This paper is offered in order to suggest the possibility implied in the title, and to elicit any comment which its publication may induce. In fact, such comment is invited. Search in the literature has thus far been barren of reference, yet it may be that such reference has been overlooked, or that some physicians have knowledge of conditions occurring as in the present account. During the months of October and November, 1913, numerous newspaper reports called attention to cases of sickness and death alleged to be due to the eating of chestnuts obtained from blighted trees. These cases were reported from Hartford, Conn., and vicinity, from a town in New Jersey, from several places in Massachusetts, and from a point in New Hampshire. I undertook investigation with a view to ascertaining the facts giving rise to the reports. The results of the study are here set forth.

PRELIMINARY CONSIDERATIONS

1. In Healthy Chestnut Trees.—The fruit (so-called nut) of the healthy tree is not supposed to be toxic. Germination, however, is remarkable for chemical (enzymic) activity, and it should not be forgotten that at this period liberation of toxic substances may not be impossible. Analogy is seen in the instance of growing sorghum, hydrocyanic acid compounds appearing in the immature plant. Hydrocyanic acid compounds, nitrobenzene or toxalbumins may not reasonably be imagined as being possibly present in germinating chestnuts; whether they are in fact present or absent has not been determined.

A period of unusually warm, dry weather in the fall, followed, at the time of chestnut maturity, by copious rains, tends to induce germination in the nuts while still on the trees and after they fall to the ground. Such germinating chestnuts, though healthy, cannot

TABULATION OF CASE-CHARACTERISTICS

Characteristics	Cases																				
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Locality	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	†	‡	§
Age	3½	6	32	45?	17	63	4½	21	28	20+	20+	6	5	9	13	7	14	11	3	7	11
Sex	M.	M.	F.	M.	M.	F.	M.	F.	F.	F.	F.	M.	M.	M.	M.	F.	M.	M.	M.	F.	M.
Moderate fever	+	+	—	..	..	—	..	—	—	—	—	+	+	+	+	+	+	+	+¶	—	—
High fever	—	—	+	..	..	—	..	—	—	—	—	—	—	—	—	—	—	—	+‡	+	+
Chill	—	—	+	—	..	—	..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Abdominal cramps	+	+	+	+	+	+	..	..	—	+	..	—	—	—	—	—	—	—	—	—	—
Diarrhea	+	+	+	+	..	+	..	—	+	+	—	—	—	—	—	—	—	—	—	+	—
Blood in stool	+	+	+	..	..	+	..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Negative abdomen	+	+	+	..	..	+	..	+	+	+	+	+	..	+	..	..	..	..	..	+	+
Constipation	—	—	—	—	..	—	..	+	—	—	+	+	+	+	+	+	+	+	+	—	—
Pain in left stomach	—	—	—	..	..	—	..	—	+	+	+	—	—	+	+	+	+	+	—	—	—
Vomiting	+	+	—	+	..	+	..	+	—	+	+	+	+	..	..	..	..	..	—	+	+
Nausea only	—	—	—	—	..	—	••	—	—	—	—	—	—	+	+	+	+	+	—	—	—
Pulselessness	—	+	+	—	—	—	••	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Full, slow pulse	—	—	—	..	..	..	••	..	..	—	—	—	..	+	+	+	+	+	..	—	—
Rapid heart	..	..	+	..	..	..	••	—	—	—	—	..	—	—	—	—	—	—	—	+	+
Pallor	+	+	+	..	..	..	••	—	—	—	—	..	—	—	—	—	—	—	—	—	—
Cyanosis	..	—	+	..	..	..	••	—	—	—	—	+	—	—	—	—	—	—	—	—	—
Slight urinary decrease	—	—	—	..	..	—	••	—	—	—	—	+	—	—	—	—	—	—	+	—	—
Air-hunger	—	—	+	..	..	—	••	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Cutaneous eruption	—	—	—	—	—	—	••	—	—	—	—	—	—	—	—	—	—	—	—	—	+
Oral herpes, ulcerative	—	—	—	..	..	—	••	—	—	—	—	—	—	—	—	—	—	—	+	—	+
Headache	—	..	—	..	..	—	••	—	—	—	..	—	—	—	—	—	—	—	—	—	+
Soreness to touch	—	—	+	..	..	—	••	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Pain in limbs	—	—	—	..	..	—	••	—	—	—	—	—	—	—	—	—	—	—	+	—	—
Vertigo	..	..	—	..	..	..	••	+	..	+	+	..	—	—	—	—	—	—	—	—	—
Drowsiness	—	—	—	..	..	—	••	—	—	—	—	+	+	—	—	—	—	—	+	—	—
Stupor	..	..	—	—	—	—	••	—	—	—	—	+	+	—	—	—	—	—	—	—	—
Restlessness	+	+	+	..	..	—	••	—	—	—	—	—	—	—	—	—	—	—	+	—	+
Convulsions	—	—	—	—	—	—	..	—	—	—	—	+	—	—	—	—	—	—	—	+	—
Delirium	—	+	—	—	—	—	..	—	—	—	—	+	—	—	—	—	—	—	—	—	+
Paralysis (legs)	—	—	—	—	—	—	..	—	—	—	—	..	—	—	—	—	—	—	+	—	—
Coma	+	+	—	—	—	—	..	—	—	—	—	+	—	—	—	—	—	—	—	+	—
Prodromal fatigue	—	—	—	—	—	—	..	—	—	—	—	+	+	+	+	+	+	+	+	—	—
Great prostration	+	+	+	..	..	+	..	+	+	+	..	+	+	+	+	+	+	+	—	+	..
Sweating	—	—	—	..	..	—	..	—	+	—	—	+	—	—	—	—	—	—	+	—	—
Sunken eyes	..	+	..	..	..	..	..	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Diagnosed toxemia	+	+	+	..	..	+	..	..	..	..	..	+	..	+	+	+	+	+	..	+	+
Death	+	+	+	..	..	—	..	—	—	—	—	+	—	—	—	—	—	—	—	—	—
Slow recovery	—	—	—	+	+	+	+	+	+	+	+	—	+	+	+	+	+	+	+	+	+
Raw nuts, blighted trees	+	+	+	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Raw nuts (blight?)	..	..	..	+	+	..	..	+	..	+	+	+	+	+	+	+	+	+	+	+	+
Boiled nuts (blight?)	..	..	..	..	..	+	..	..	+	..	..	..	..	..	..	..	..	..	..	..	..

Plus signs indicate ascertained positive information, minus signs ascertained negative information, and blank spaces absence of information. • Connecticut. † New Jersey. ‡ Massachusetts. § New Hampshire. ¶ Late. ‡ Early. •• Gastro-enteritis—chestnuts undetermined.

be considered as decisively free from substances toxic, as above indicated.

2. In Unhealthy Chestnut Trees.—The chestnut bark disease, or so-called "blight," whose spread is now extensive and destructive in the New England States, New York, Pennsylvania, New Jersey and other states comprising the eastern portion of the chestnut range, is due to infection of the bark by a fungus (an ascomycete) called *Endothia parasitica*, or, formerly, *Diaporthe parasitica*.

The fungus infects by lodgment of spores in a wound or wounds occurring in the bark, the mycelium spreading circumferentially so as finally to girdle the infected twig, branch or trunk. The mycelial development interferes with nutrition in the part attacked, so that, when girdling is complete, or nearly so, structures distal to the lesion die.

While infection of the nut, directly by implantation of the fungus, has been noticed, such infection appears to be rare; moreover, nuts obviously infected are not likely to be eaten. Influences affecting the edible portion of the nut should occur by alteration of nutrition, as induced by the mycelial growth in the bark. Circulating sap, perverted quantitatively, qualitatively or both, may produce nuts immature, undersized or conceivably containing toxic substances absent in the healthy chestnut.

REPORT OF INVESTIGATION

The accompanying tabulation shows an analysis of characteristics ascertained to be dependable. No assertion is made that they are to be ascribed positively to the eating of chestnuts as cause. The *post hoc*, though present, is not here intended necessarily to mean *propter hoc*. Since the chestnut season is now over for this year, it may well be that reservation of decision will be required for one or more further seasons. Food-poisoning, aside from chestnuts, is excluded in the present series.

The characteristics, as grouped, follow, with some slight, unavoidable overlapping, a classification based obviously on the physical (splanchnic, somatic) systems affected in the respective cases.

In connection with this tabulation there are certain conditions which tend to contravene the idea here related to the etiology. Thus, the circumstances in Case 19 are complicated by the presence of an undoubted case of poliomyelitis convalescent in the vicinity; again, Case 7 is not accompanied by proof whether or not chestnuts were eaten. The eruption in Case 21 was mostly papular, slightly papulovesicular, and general, being especially conspicuous about the mouth, anus and prepuce. In connection with the subject of eruption as related to chestnut-eating, the tabulation indicates noticeable absence of eruption in cases undoubtedly associable with ingestion of chestnuts—a condition at variance with an elicited *viva voce* tradition to the effect that skin eruption and sore mouth are sequelae not uncommonly incidental to the eating of chestnuts.

The topic "great prostration" implies in every instance an effect disproportionate to any apparent cause.

Chemical and biologic examination of chestnuts is now going forward. It is hoped that the result of the study may be given in a future paper.

Cordial acknowledgment is made of suggestions and criticism kindly granted by Drs. W. T. Councilman, Reid Hunt and C. J. White, of Harvard University, Dr. Morris Longstreth of Cambridge, Dr. C. K. Mills of the University of Pennsylvania, Dr. Steiner of Hartford Hospital, Dr. C. C. Beach and other physicians who furnished valuable assistance in promoting this inquiry.

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SYPHILIS IN THE MEDICAL DISPENSARY*

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The general medical dispensary offers one of the avenues of attack on the important problem of the control of syphilis, which to-day lags sadly behind our knowledge of the pathology and treatment of the disease. It is important to recognize, first, the frequent occurrence of this disease in the medical dispensary. Out of a thousand consecutive new cases in the medical out-patient department of the Pennsylvania Hospital, thirty-four were diagnosed as luetic, of which thirty gave positive Wassermann reactions. The last-named figure is 3 per cent. of all the dispensary cases, probably considerably below half the actual proportion of patients attending the dispensary who have contracted syphilis. Even in those patients in whom the symptoms could not be attributed with absolute certainty to syphilis, the presence of the Wassermann reaction indicated the employment of specific treatment. The second point to be emphasized is that a large proportion of the patients in medical dispensaries present themselves when cure or distinct improvement is still within reach. While most of the cases have passed the primary and secondary stages, the patients often come before any definite demonstrable lesions have appeared, or while such lesions are still capable, if not of a cure, of marked improvement, or of having the progress of the disease arrested.

The data forming the basis of this paper were gleaned from the records of 108 cases tested for the Wassermann reaction in the Pennsylvania Hospital Medical Dispensary. These cases may be briefly classified as in Table 1.

TABLE 1.—CLASSIFICATION OF 108 CASES

	No. of Cases	Male	Female	Average Age, Years
Wassermann positive, 48 cases:				
Congenital	5	3	2	9
Secondary	3	3	0	28
Tertiary	40	33	7	38 2/5
Wassermann doubtful, 7 cases:				
Luetic	4	3	1	37 ½
Non-luetic	3	3	0	33
Wassermann negative, 53 cases:				
Luetic	1	1	0	47
Non-luetic	52	41	11	38 3/10

It is our desire, within the brief limits of this paper, to utilize the facts gained from a study of these cases to focus attention on a few of the many important aspects of the subject of syphilis in the general medical dispensary. The first point to be emphasized is the diffi-

* From the Out-Patient Department of the Pennsylvania Hospital.

culty of recognizing many of these cases on account of the obscure guise in which they present themselves. Making a diagnosis in many of the cases is seriously hampered, because three of the main lines of investigation yield no definite information. The past history may be negative, the symptoms may be vague and indefinite in the extreme or even altogether absent, and abnormal physical findings may be slight or wholly lacking.

The first point is well illustrated by Table 2, in which the past history refers to venereal sores, secondaries or miscarriages, or to more than one of these.

TABLE 2.—SYPHILITIC HISTORY

	No History	History Present
Positive Wassermann, 48 cases	20	28
Doubtful Wassermann, 7 cases	4	3
Negative Wassermann, 53 cases	33	20

The unreliability of such negative histories in these particulars has struck the attention of all who have interested themselves in this subject, and is encountered in a large proportion even of intelligent and private patients. Over 35 per cent. of our positive Wassermann cases presented negative histories, and among those with a history of venereal sore the description was often too vague to determine its character. A history of venereal sore was obtained in eighteen of the positive Wassermann cases, in which all the patients were males but one, a history of secondaries in only three, all the patients being males, and a history of miscarriages in six, occurring in four of the seven non-congenital cases (female patients), and in one congenital and one non-congenital case (male patients). These negative responses were probably not due in most cases to any desire to evade the truth, but occurred rather because the early manifestations were not recognized by the patients or were so slight that they were disregarded. It is doubtful if more careful questioning would have materially altered these figures. The difficulties in diagnosis are also demonstrated by the large proportion of positive histories among the supposedly non-luetic cases.

The second point illustrating the difficulties in the diagnosis of syphilis in the medical dispensary is the symptomatology. While some symptoms are relatively suggestive, many of them are absolutely indefinite as to either the presence or absence of the disease. To consider but a single symptom, we find pain frequently in both the positively reacting and the negatively reacting cases, though oftener in the luetic, in which it occurred in 75 per cent. of the cases in contrast to 62.3 per cent. of the non-specific cases.

TABLE 3.—PAIN

	Wassermann	
	Positive	Negative
Pain absent	12	20
Pain present	36	33
Head	11	5
Chest	10	9
Abdomen	9	5
Back	6	7
Limbs	11	9
General	7	3

From Table 3 it will be seen that pain occurred either as general pain or pain localized in one or more portions of the body; but one looks in vain in most cases for any distinguishing features about these pains. Other symptoms occurred likewise in great numbers and variety, and beyond mere mention of their frequent vagueness and indefiniteness cannot be discussed here. Our point is further demonstrated by the tentative diagnoses made prior to the examination of the blood. Thus of nine cases diagnosed as muscular rheumatism, three gave a positive Wassermann and were considered to be specific; out of fourteen classified as gastro-intestinal there were six luetic, while three out of eleven cardiovascular cases, two out of seven respiratory, two out of fifteen nervous cases, and three out of eighteen miscellaneous cases proved eventually to be syphilitic. It is also well known, as demonstrated by one of our cases, that a positive Wassermann may exist in the absence of all symptoms.

The third great difficulty that presents itself in the diagnosis of these cases is the frequent absence of any clearly demonstrable local lesion. Thus out of the forty-eight positive Wassermann cases, nineteen (39.6 per cent.) gave no abnormal physical findings, and fourteen more revealed only adenopathy. In the remaining fifteen cases there were several with conditions such as cardiovascular and nervous that could be considered as no more than suggestive.

Of course, when the history and symptoms and physical findings are considered together, the available information becomes much more valuable; but even when we have obtained everything possible from all of these sources, there are still many uncertain cases that will remain obscure. This assertion is demonstrated by many of the diagnoses in these cases made prior to the employment of the Wassermann test.

The great value of the Wassermann test in many of these cases cannot be overestimated. Thus among the forty-eight positive cases, nineteen were tentatively diagnosed under other headings at the first visit, and in a large proportion of the remainder a good deal of uncertainty existed as to the specific nature of the cases. The great need for this test was further shown by the large number of suspects who reacted negatively, in the majority of which there was no reason to question the reliability of the negative findings.

The other special matter which we wish to mention briefly is the subject of treatment and results. How unsatisfactory they are in medical dispensary work is well known; but the seriousness of the situation has failed to stimulate effort sufficiently in behalf of practical results. Imperfect treatment is a serious economic blunder on the part of the dispensary, while to the patient it may result in the loss of life. Our results in forty-eight positive Wassermann cases are briefly summarized in Table 4.

TABLE 4.—NUMBER OF VISITS AND RESULTS

No. of Visits	No. of Patients	Improved
1	24	...
From 2 to 5	13	7
From 6 to 10*	7	6
From 11 to 31†	4	4

* Of these cases 1 out of 4 later yielded a negative Wassermann.
† Of these cases 3 out of 3 later yielded a negative Wassermann.

Three of the one-visit cases were seen only a few weeks before the writing of this paper. None of the patients have continued treatment over seven months, though a few are still under observation. The figures speak so plainly for themselves that comment seems superfluous. In this connection, Fournier's statement is instructive, that 78 per cent. of cases of tertiary syphilis give a history of insufficient or improper treatment. He also states that over 8 per cent. give absolutely no history, and over 20 per cent. more have received treatment for less than three months. The best way of treating these patients cannot be entered into here, beyond emphasizing the great value of salvarsan. We do wish, however, to insist most forcibly on establishing some method by which the treatment decided on shall be carried out to completion. Sufficient time should be taken to impress

the patient with the importance of full treatment, and in explaining its details, and that essential ally, the social service department, should be called on to follow up all negligent patients.

SUMMARY

Syphilis forms a considerable proportion of all cases among persons applying to the general medical dispensary — at least 3 per cent., according to our figures. It usually presents itself at a time when cure or marked improvement, or much in the way of prevention, are still available. The manifestations of the disease in the medical dispensary are often very obscure and misleading, and the cases form a group quite distinct from the type ordinarily encountered in the genito-urinary dispensaries, or in special dispensaries like the surgical or nervous dispensaries, in which the patients usually present distinct symptom-complexes or localizing phenomena. Students should be given more special instruction in these atypical types of the disease, and should be impressed with the need of being constantly on the lookout for cases of syphilis in their medical work. Dispensaries should have as nearly as possible a definite routine method of treating the disease, with the use of salvarsan occupying a prominent place, and every available means, including the cooperation of the social service department, should be utilized to the full in endeavoring to secure the complete carrying out of treatment.

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THE CALL OF THE CHILD

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The federal Children's Bureau is more than justifying itself. At the recent Conservation Exposition in Knoxville, Tenn., the bureau installed as a part of the child-welfare exhibit, a children's health conference to try out a plan of raising the standard of children without resorting to commercial or spectacular methods. The government wanted to know if its future citizens were being given a fair chance, for no phase of conservation can be of more vital or far-reaching importance than that of securing the health and efficiency of the coming generation.

There was also a deep-rooted feeling that all mothers want fine babies, and that their failures are due more to ignorance than to indifference; that they need help rather than prodding, encouragement rather than criticism. So the conference invited all parents to bring their children—not prize babies or sick babies, for neither prizes nor prescriptions were given, but average children—and the average mother was helped by the attending physician to see her child as a future citizen, entitled to the best this country can do for him.

No scoring was done, no comparison or competition was exploited; but the results justified the premise that the natural incentive of parenthood is a safer and more wholesome stimulus than cash prizes or notoriety. Children were brought from all the adjoining towns for examination. It was a revelation to see men as interested as their wives in what would be generally considered woman's work. Business men, club men, university men, farmers, stock-growers, all wanted to know where they stood as fathers.

But one family at a time was admitted to the conference room, where each child was carefully weighed, measured and examined by the physician and parents. The latter were shown point by point where they were succeeding and where failing. Together they went into the child's present, its past, even, if necessary, into prenatal conditions; the sanitation of the home, the hygiene of the family, often its economic condition in its bearing on the nutrition of the child. All legitimate means were used to press home the responsibility of parent to child, and to help them associate cause and effect.

The conference opened its doors to all classes and conditions, and to all ages under 15.

An old countryman covered with whiskers and confusion seemed greatly interested in the conference. Finally, screwing up his courage, he asked the physician in charge why one child should be "little and puny" when others were "big and strong." After a little conversation he declared he was going back to the mountains and get his boy, and he did. A few days later he appeared at the conference room with a big-eyed, wondering wife, six great gawky girls, and a little wizened specimen of a boy fairly wiggling with hookworm.

A university man and his wife brought to the conference a splendid boy of 22 months, so well developed that they had entirely overlooked the faulty articulation of a foot due probably to their overzealous pride in his precocious stunts.

A prominent and wealthy couple brought to the conference an only daughter, so jealously guarded and exclusively trained that they did not even know the child was retarded mentally.

A solicitous and intelligent mother was amazed to have pointed out to her a marked deflection of spine in her supposedly normal child.

A countryman, on being congratulated on the advantages of the country and on the freedom of his family from enlarged lymph-nodes, the commonest defect in that section, replied that he had tried to raise his children "simple and hearty," and he "sho' believed in fresh air." "Why," he added, "yo' could fling a dog through my cabin, jes anywhars." His wife removed the snuff-stick from her mouth long enough to confide, "We comes from Greene County where people leads clean lives and we don't have them things" [enlarged lymph-nodes].

One little youngster brought himself to the conference, for his parents had died in the country and he had come to town to go to school, but was greatly disappointed because his eyes were bad and he could not study. He was sent to a specialist, who found the sight of one eye entirely gone and the other seriously affected.

These are only samples of the people reached by the conference. The children are no more perfect than their parents, and none but the medical profession can make them so. It is for the American Medical Association to say if it is prepared to meet this call of the child. It must be admitted that physicians do not always measure up to their opportunities. One doctor, for instance, left the toilet of a new-born baby to an old negro granny, who bound the top of a sardine box over the cord to prevent bulging. The baby has doubtless died since of the infection which followed.

A prosperous young mother brought her little starving baby to the conference. "Indeed," she protested, "I have the best children's specialist in B., but you know he is always so rushed he does not have time to tell me all the things I need to know."

It was soon discovered that faulty nutrition was at the bottom of most of the ills of the conference children, and an expert was secured to give practical demonstra-

tions on the care and preparation of milk, the feeding of infants, of schoolchildren, and the wholesome preparation of foods common to that locality. The fact was also disclosed that the bottle-fed baby is a product of the city. Of nearly 900 such children, 545 were raised in small towns of 3,000 and under. Of strictly country-bred children, exactly two were weaned at birth, one because of the death of its mother and the other on account of a "bealing breast."

The average length of breast-feeding was from eighteen to twenty months, though especially unfortunate little victims were kept at the breast for three, four and even six years. This does not by any means imply strict breast-feeding, for the rural child is almost invariably fed, in addition to the breast, a taste of everything its mother eats—"to keep it from having colic." A young mother smiled scornfully when remonstrated with for feeding her baby green grapes—"La!" she said, "he don't think no more o' eatin' them grapes 'n you do o' spittin'."

The proportion of defects varied slightly from those found by medical inspectors of schools, as the children ranged from 3 weeks to 15 years; 541, or 66.6 per cent., being under school age; and enlarged lymph-nodes were proportionately in excess of defective teeth. The East Tennessee child represented a type taller than Holt's standard, 612, or 71.3 per cent., being above Holt's normal, as against 154 below, and 90 corresponding to his standard.

In weight they are nearer normal, 422, or 49 per cent., being below Holt's standard, while 337, or 39 per cent., are above size, and 97, or 11 per cent., normal.

The conference seemed to establish several facts which have been agitating the public mind for a few years past.

1. The medical profession is alive and quite able to care for the children of the country without resorting to hysterical or spectacular methods.

2. It does not need the financial backing of advertising concerns to point the way to its duty. This work may be kept free of commercial entanglement and on the usual high plane of professional activities.

3. The medical profession stands ready to give of its knowledge and efforts to the uplift of mankind, and the little child shall not call in vain.

4. It is to be hoped that the work of raising the standard of our public health may remain where it belongs, in the hands of the government and of the medical profession, and that together they may work out the solution of this most vital phase of conservation.

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PRECIPITATION TESTS IN SYPHILIS*

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Wassermann, Neisser and Bruck applied Bordet-Gengou's phenomenon of complement fixation to syphilis in 1906. Since then, their principles have undergone many refinements until to-day the method of complement fixation stands out as a test *par excellence* for syphilis. The recognition of natural antisheep red cell amboceptor, the provisions against non-specific complement deviation, the use of inactive serum, the refinement of antigen, the cognizance of anticomplementary effects — all have determined the specificity of the Wassermann reaction.

Owing to the difficulties encountered in a reliable performance of the reaction, methods have been devised for the serodiagnosis of syphilis, having for their main objects simplicity and rapidity. These methods are based on precipitation in luetic serums by various reagents.

R. Kraus,[1] in 1897, discovered the precipitating action of immune serums by bacterial suspensions; but, as the *Treponema pallidum* is so difficult of cultivation, no similar method was used in syphilis to detect antibody. Fornet and Schereschewsky[2] modified this principle by adding the serums of tabetics (luetic) to those of earlier syphilis and obtained precipitations. They found the reaction specific and explained it by declaring that "antigen" existed in early syphilis serum and "antibody" in later. Several factors are concerned here that affect the specificity of this action which we shall show later.

Elias, Neubauer, Porges and Soloman[3] were the first to use a hydrophilic colloid. They employed a 1 per cent. solution of sodium glycocholate and obtained precipitation with syphilitic serums. These authors, however, have failed to demonstrate an absolute specificity in their reaction. Wieder and L'Engle[4] have used sodium taurocholate, taurin solution and distilled water, but while precipitation occurred there was a complete lack of specificity. Klausner[5] obtained a precipitum when fresh syphilitic serum was added to distilled water and allowed to incubate for several hours. Our experiences taught us that some non-luetic serums would give positive while some luetic serums would give negative results. Also, we confirmed Hayn's observation that inactivation as well as aging abolished the effect. Sachs[6] found that the addition of from 1:1,000 to 1:500 normal hydrochloric acid restores this property, but he, likewise, could not determine the specificity of the Klausner reaction. The effect of addition of the dilute hydrochloric acid is of interest in the Wassermann reaction, in which similar results may be had, and is probably due to the acid disturbing the hydroxyl concentration which occurs in inactive serums. Cuorin, used by Teruuchi and Toyada,[7] and lecithin by Georg Meier[8] gave precipitation when added to syphilitic serums, but Meier showed that these precipitinogens had a high degree of non-specificity (50 per cent. of non-luetic serums gave precipitations).

Herman and Perutz[9] modified Elias, Neubauer, Porges and Soloman's reaction and asserted that a precipitation by their method meant syphilis. Remarkable attestations to this specificity have been appearing from then to date.

In 241 cases of syphilis, Thomsen and Boas[10] found the Wassermann reaction to be positive in 86 per cent., while the Herman-Perutz reaction was positive in 48.4 per cent. In 182 non-luetic cases the Wassermann was negative in all, the Herman-Perutz positive in three.

* From the Research Laboratory, Department of Health, New York City.

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9. Herman and Perutz: Med. Klinik, 1911, No. 2.
10. Thomsen and Boas: Ztschr. f. Immunitätsforsch. u. exper. Therap., Orig., 1913, xvi, No. 4.

One case was that of a third stage pulmonary tuberculosis, another of venereal ulcer without spirochetes and the third a case of osteomyelitis and sepsis with subsequent death, necropsy showing no syphilis. In 106 serums Jensen and Freilberg[11] found sixty-three non-luetic, with the Herman-Perutz reaction negative in all, and forty-three luetic with the Herman-Perutz reaction positive in all tested, corresponding to positive Wassermann reactions. Gammeltoft[12] found it a quick and convenient method for diagnosing syphilis. Of 156 control serums (negative) only one (cancer of the liver) gave a positive precipitation, in which case the Wassermann was negative. Ellermann,[13] Lade[14] and Kallós[15] (the observation of the latter two having been made recently) came to the same conclusions, that a precipitation means syphilis whenever it occurs.

We have investigated this question by applying this reaction 259 times to 175 serums. We employed the technic recommended by Herman and Perutz. This is, in short, as follows:

Two solutions are used:

Solution 1 (stock solution diluted 1 : 20 with distilled water before use):

Sodium glycocholate	2.0 gm.
Cholesterol	0.4 gm.
95 per cent. alcohol	100.0 gm.

Solution 2 (freshly prepared before use):
Sodium glycocholate 2 per cent. in distilled water.

The test was performed by adding to 0.4 c.c. of clear inactive serum (56 C. [100.8 F.] for half an hour) in a 7 mm. bore tube, 0.2 c.c. of Solution 1 and 0.2 c.c. of Solution 2. (We controlled the test by adding 0.4 c.c. of distilled water, instead of reagent, to the serums and for each set of tests adding 0.4 c.c. of distilled water to 0.4 c.c. of the reagent.) The tubes were plugged tightly with cotton and set aside at room temperature for twenty hours, when the presence or absence of precipitation was noted.

By this method Herman and Perutz obtained these comparative results: Of 89 non-syphilitic cases, only one reacted feebly (a serum from a tuberculosis patient), of 134 syphilitic serums, 102 were examined. The Wassermann reaction was positive in 72 and negative in 30, and their reaction positive in 76 and negative in 26.

In our series of examinations, the serums were all controlled by first performing the original Wassermann reaction, but using only one-tenth of Wassermann's amounts. Alcoholic extract of normal guinea-pig heart was employed as antigen, and fixation allowed for four hours in the ice-chest. Readings were made just as soon as the controls (containing twice the amount of antigen and serum used in the test)hemolyzed.

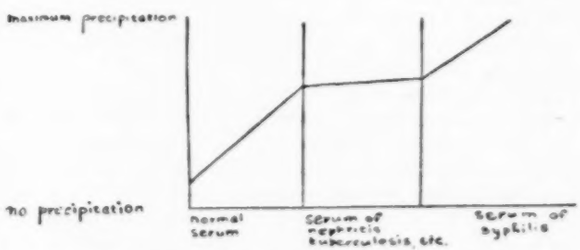
In 95 cases of syphilis in different stages we have found 88 giving a positive Wassermann reaction, 7 being negative. Correspondingly, the Herman-Perutz modification, when used, showed 58 positive, 3 doubtful and 34 negative reactions. In 80 non-luetic serums, the Wassermann reaction was negative in all, but the Herman-Perutz test was positive in 16. Of these, 50 per cent. were serums from chronic nephritics. Other positives were found in pulmonary tuberculosis, arteriosclerosis, chronic arthritis, chronic endocarditis, obesity and a normal condition.

11. Jensen and Freilberg: Berl. klin. Wchnschr., 1912, No. 23.
12. Gammeltoft: Deutsch med. Wchnschr., 1912, No. 41.
13. Ellermann: Deutsch. med. Wchnschr., 1912, No. 5.
14. Lade: Deutsch. med. Wchnschr., 1913, No. 15.
15. Kallós: Deutsch. med. Wchnschr., 1913, No. 39.

Strong[16] likewise found that 10 per cent. of non-specific serums gave a positive precipitation.

We attempted to obtain more reliable results by trying various modifications in technic. One series of serums was set aside in the ice-chest instead of being kept at room temperature, but no increase in precipitation was noted; two serums of fourteen, however, positive at room temperature, became negative in the ice-chest. Another series was incubated, but the results were far from satisfactory. This temperature offered a good field for the development of bacteria, molds, etc., which interfered with precipitations. Then again, great variations were found between the precipitinogenic Solution 1, when it was diluted by the addition of distilled water drop by drop, or when water was added *en masse*. Analogously to the results in the Wassermann reaction, many more positives were obtained by the former method. The results obtained by using active or inactive serums almost corresponded; but, since some of the positives obtained in active serums were non-specific and since these became negative in inactive serums, it appears best to use inactive serum under all circumstances. In fact, the modification of Herman-Perutz in all details gave the most constant results.

We attempted to substitute the precipitinogen by using an alcoholic extract of normal guinea-pig heart (Wassermann antigen), but there was a uniform precipitation in normal as well as luetic serums. This is due to the presence of alcohol, which has the power to coagulate the albumins present in serum. Others have obtained precipitations by using various fractions of syphilitic liver antigens, yet have not obtained a desideratum for the rapid diagnosis of syphilis.



Curve of precipitation of the Herman-Perutz reaction.

RATIONALE OF PRECIPITATION REACTIONS

We were struck by the constancy with which all serums, luetic or non-luetic, became clouded when these tests were performed. Indeed, only such as gave a distinct flocculation could be regarded as positive. This reaction is a colloidal one. There is a throwing of the sols into gel formation. It is represented by cloudiness of the serum. In fact, particles measuring 100 microns will give rise to haziness, yet the individual masses will be invisible, unless the ultramicroscope is called into play. The reactions are purely quantitative, not qualitative.

If, on an ordinate, we were to plot normal serum, serum from nephritis, tuberculosis or conditions in which cholesterol or the albumins have been found to be increased, and then syphilis; and on an abscissa we were to plot the degree of precipitation found by using the Herman-Perutz reaction, we should obtain a curve with its maximum point at syphilis and descending

16. Strong: Jour. Med. Research, 1911, xxv, No. 1.

therefrom to normal serum, but never reaching normal serums at zero precipitation.

Other factors appear to interfere with precipitation tests. We have seen alcohol by itself in dilutions from 20 per cent. to 95 per cent. produce a gel formation. Again, serum is contaminated easily and, owing to consequent changes in reaction and surface tensions, spontaneous gel formation may occur. Elias, Neubauer, Porges and Soloman have shown that sodium glycocholate in 1 per cent. dilutions may give very light precipitations in normal serums.

CONCLUSIONS

The Herman-Perutz reaction or precipitation by hydrophilic colloids in general should be regarded as only partially specific. That is, only a heavy precipitation should be considered positive, and then only in a presumptive sense. A diagnosis of syphilis should not be made therefrom, but further investigations of such a serum is in order, especially by means of the Wassermann reaction.

The Wassermann reaction is by far the more reliable of the two.

There is no absolute parallelism between precipitation and complement fixation. The degrees of similarity should not warrant the theory that antigen precipitates antibody, thus binding complement.

Pathological Laboratory, Mt. Sinai Hospital — Research Laboratory, Department of Health.

THE LIBERATION OF FORMALDEHYD FROM HEXAMETHYLENAMIN IN PATHOLOGIC FLUIDS *

PAUL J. HANZLIK, M.D.
CLEVELAND

In a previous publication[1] it was shown that the decomposition of hexamethylenamin in the living normal organism takes place only in acid urine and gastric juice, that it depends on the excess hydrogen ion [H⁺] concentration[2] of the fluid, and that in those body fluids which are neutral or truly alkaline (possessing [H⁺] concentrations of 7.0 or less), no liberation of formaldehyd from hexamethylenamin takes place. It is conceivable, however, that the reactions of certain pathologic fluids may be truly acid. This might be true of those fluids which exhibit pronounced degrees of stasis, putrefaction or those of clinical "acidoses." With this in view, we have investigated the distribution of hexamethylenamin and free formaldehyd, and the reaction of these fluids, according to the methods described in our previous paper.

Through the courtesy of the various staffs of the Lakeside, City and Charity hospitals of Cleveland, the following pathologic fluids were obtained from patients suffering with different clinical conditions. Usually a dose of 60 grains of hexamethylenamin was given about one hour before the fluid was obtained.

* From the Pharmacological Laboratory, Western Reserve University Medical Department.

1. Hanzlik, Paul J., and Collins, R. J.: Hexamethylenamin: The Liberation of Formaldehyd and the Antiseptic Efficiency under Different Chemical and Biological Conditions, Arch. Int. Med., November, 1913, p. 578; abstr., THE JOURNAL A. M. A., Nov. 29, 1913, p. 2012.

2. Of the two forms for this sign, [H⁺] and [Ĥ], the former has been preferred by THE JOURNAL; the latter was the form used in the author's previous paper, mentioned above.

URINES

In twelve urines from persons suffering from acute, chronic and hemorrhagic nephritides, the mean value for the [H⁺] concentration was about 6.5; that is, they were truly acid, and formaldehyd was present at all times together with hexamethylenamin. The average time of appearance of hexamethylenamin was seventeen minutes, that is, about the same as normal. In two patients with cystitis, the urines contained hexamethylenamin and free formaldehyd; the [H⁺] concentration of several specimens ranged from 6.3 to 6.51; that is, they were truly acid. In another person with cystitis whose urine was alkaline ([H⁺] concentration, 7.08), hexamethylenamin was present, but no free formaldehyd. These data indicate that the behavior of hexamethylenamin in urines of various pathologic conditions is about the same as in urines of normal persons, since it is the reaction which is the essential factor in determining the decomposition.

OTHER BODY FLUIDS

Eighteen cerebrospinal fluids obtained from the following conditions; cerebrospinal lues, general paresis, diabetes, alcoholic neuritis, neurasthenia, cerebral arteriosclerosis, leprosy, tabes, epilepsy, pneumococcic meningitis, tetanus and chronic gastritis, showed [H⁺] concentrations from 6.98 to 7.3; that is, they were neutral or slightly alkaline, and hexamethylenamin was present in all, but no free formaldehyd. Ten specimens of fresh bile from a patient who was ill with typhoid and had received hexamethylenamin for about four months and was operated on subsequently for cholelithiasis, showed the presence of hexamethylenamin in all of the specimens and typhoid bacilli at the beginning and end of the experiment; no formaldehyd was present in any of the freshly collected specimens and the [H⁺] concentration ranged from 6.98 to 7.18; that is, the bile was practically neutral or slightly alkaline. No bactericidal action had been exerted by the presence of the hexamethylenamin. Three specimens of bile from another patient operated on for cholelithiasis gave practically the same results so far as the reaction and formaldehyd liberation are concerned. On standing, some of the specimens became truly acid and showed the presence of free formaldehyd. Two specimens of edema fluid from the extremities showed the presence of hexamethylenamin, but no free formaldehyd, and their [H⁺] concentrations were 7.1. In a child with tuberculous pleurisy, hexamethylenamin but no free formaldehyd was found in the chest fluid, and the [H⁺] concentration was 7.1. An ascitic fluid showed hexamethylenamin, but no free formaldehyd; the [H⁺] concentration was 7.42. The bloods of four diabetic patients showed the presence of hexamethylenamin but no free formaldehyd; their [H⁺] concentrations ranged from 7.3 to 7.45; that is, they were slightly alkaline.

The pathologic data indicate that these body fluids contained no free formaldehyd. It would be contended, therefore, that no bactericidal action could have been expected. In our observations, the average and maximum acidity were no higher than in the corresponding normal fluids. With urines, it appears that the average acidity is higher in pathologic than in normal conditions; but the maximum acidity so far recorded is not higher in pathologic cases than the maximum acidity of some normal urines.

CONCLUSIONS

The decomposition of hexamethylenamin in pathologic fluids obeys the same laws as in normal circulat-

ing fluids, and fluids *in vitro* under different chemical conditions. That is, the liberation of free formaldehyd from hexamethylenamin depends on the excess hydrogen ion concentration of the fluid (true acidity).

This investigation is being continued so as to obtain more data, and a more complete report will be published later.

CLAMP RESECTION OF THE URINARY BLADDER

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Attending Genito-Urinary Surgeon to the Michael Reese and Maimonides Hospitals

The case which is the subject of this report is interesting from both a diagnostic and a technical point of view.

History.—The patient, a woman aged about 30, complains that during the last eight months she has been compelled to urinate frequently, especially on lying down, that each act of urination is rather painful and also that for the last six weeks the bladder has become the seat of spontaneous pains. The attending physician made a diagnosis of cystitis and tried to improve the condition by flushings of the bladder, which proved futile.

Examination.—I found, on examination, that the urine was cloudy, owing to the presence of a considerable amount of pus, the quantity of which was estimated to correspond with the quantity of albumin found. Kidney elements were not recognized. The cystoscope examination revealed the fundus and the trigon of the bladder and the ureteral openings to be of normal appearance. In the vertex of the bladder whitish excrescences were seen which covered an area of the size and shape of a quarter. The tips of these excrescences were dendritic and fluffy. The area was surrounded by mucosa raised in thick clumsy dark-red folds that were deprived of the normal gloss, and here and there a few submucous hemorrhagic patches were seen. In order to gain a clearer view of the base of this whitish centerpiece, finger pressure was exerted on the abdomen above the symphysis; the vertex of the bladder was inverted into the viscus and fluffy excrescences were seen to be located on top of a prominence that was surrounded by a circular ridge which gave a pronounced impression of rigidity. The dendritic excrescences were obviously phosphatic precipitations. The condition of solitary ulcer was excluded because such ulcers are sunk into the mucosa as if stamped with a die, while the bodily prominence stood out in relief; therefore the diagnosis was of an incrustated tumor. Such incrustations, as a rule, occur only on tumors that are "sick," that is, decaying on the surface, and only malignant tumors become "sick." The diagnosis, therefore, narrowed down to that of a malignant tumor of the vertex of the bladder surrounded by the inflammatory zone so frequently observed in the immediate vicinity of malignant bladder tumors. To increase the evidence the bladder was treated for a week with 20 per cent. argyrol instillations with no change in the condition or the cystoscopic appearance.

Operation.—The operative plan was the following: In order to avoid any handling of the growth during the operation with a subsequent inoculation of tumor cells into the healthy mucosa, after proper exposure the whole anterior aspect of the bladder was to be denuded of its peritoneal covering, and the top of the bladder clamped far enough down to insure the resection of the vertex vesicae in healthy tissue, the clamp being applied under the control of a cystoscope introduced into the bladder before the operation.

The tumor was extirpated by the following method: The bladder was flushed out and when the fluid returned clear the viscus was distended with 120 c.c. of sterile water, after which a Nitze examining cystoscope was introduced. The patient being under nitrous oxid-oxygen anesthesia, the bladder was exposed by a median incision and its anterior aspect was stripped bare, when it unexpectedly developed that the intended cystoscopic control of the clamp appeared to be entirely unnecessary. By palpation the insertion of the tumor and the surrounding zone of infiltration were demonstrated very clearly. The top of the bladder was picked up with an appendix forceps and drawn upward. By means of a curved intestinal clamp armed with rubber tubing the vertex of the bladder was clamped off beyond the zone of infiltration in a cephalo-caudal direction. The sequestrated part of the bladder was clipped off above the clamp and the first suture line was inserted. The clamp was then removed and a superseding suture line was laid. Muscle, fascia and skin were reunited save for a tiny drainage opening in the lower angle of the incision.

Postoperative History.—The patient began to urinate shortly after the operation and continued to do so up to the seventh day, at which time a small suprapubic fistula developed. For ten days, until the fistula closed, the urine flowed through the abdominal opening. Three weeks after the operation healing was complete. At this date the patient had to urinate rather frequently, the capacity of the bladder having been materially reduced by the extensive resection. Three months after the operation the patient was again able to retain 120 c.c. and cystoscopy at this date revealed that the inside of the bladder was apparently normal, the seat of the excision being marked by a slight distortion upward, evidently the result of the attachment of the vesical vertex to the abdominal wall. While the time which has elapsed since the operation is of course too short to allow a prediction of a permanent cure, still the operative result shows a technical success.

Macroscopically the specimen obtained by the operation was a disk 5 cm. in diameter. In the center the incrustated tumor was noted as a knob 2 cm. in diameter and 8 mm. high. Microscopically, the tumor proved to be a central carcinoma surrounded by an inflammatory area, and, so far as could be ascertained, the excision was made in non-carcinomatous tissue. The clamping off of the part of the bladder-wall to be resected was first suggested some fifteen years ago by a French surgeon, whose name, at present, I am unable to recall. Hagner some time ago tried to insulate a similarly located tumor by running sutures through the bladder-wall and beneath the base of the tumor under the control of the cystoscope.

108 North State Street.

BRAZIER'S DISEASE, BRASS-FOUNDER'S AGUE, OR ACUTE BRASS-POISONING *

CHARLES A. PFENDER, M.D., WASHINGTON, D. C.

For want of a better title I have given the name of "brazier's disease" to the syndrome about to be briefly described. The literature contains articles dealing with acute brass-poisoning, brass chills, brass-founder's ague, *fièvre des fondeurs*, *Staubfieber* and *Giessfieber*, all of which refer to the same symptom-complex. The symptoms are characteristic of acute brass-poisoning or zinc poisoning and occur only in workers who have to deal with molten zinc or brass in foundries. Brass is an alloy of copper and zinc in varying proportions. Until recently only founders were exposed to these fumes, but the modern development of industrial science, the intensive development of every known mechanical device has automatically created new vocations and given rise to diseases not hitherto encountered. The perfection of the acetylene-oxygen torch has led to a marvelous degree of autogenous welding and has remarkably facilitated the art of brazing; but from this "brazier's disease" has arisen.

Acute brass-poisoning, such as occurs in founders, was first recognized by Thackrah in England in 1830, and it has since been occasionally discussed by foreign writers. George M. Kober of this city was one of the few American writers who have had occasion to call attention to this disease. The exceedingly interesting report by Emery R. Hayhurst of Chicago, read before the section on hygiene of occupations of the Fifteenth International Congress on Hygiene and Demography in 1912, is the most comprehensive publication on this subject, deals with it in great detail and is well worth study. Hayhurst, however, confines his remarks exclusively to the disease among founders and makes no reference to it as occur-

* Read before the Galen Society of Washington, D. C., Dec. 22, 1913.

ring in any other branch of the brass industry. It is not unlikely that cases of this disease have frequently been encountered but have been confused with malaria, as the symptom-complex has much in common with that disease.

Whenever an artificer has been exposed to the fumes of molten zinc or brass for several minutes or hours, depending largely on the ventilation of the workshop, he will experience a dry throat and a slight irritative dry cough which will cause him to seek fresh air if possible. As soon as he comes into the open he will experience a sudden chill, pain in the lungs and a sense of constriction of the chest accompanied by lassitude and a taste as of blood in the mouth. Sometimes nausea is present; occasionally vomiting occurs. Headache sets in and the chill grows more pronounced. Usually the patient will be compelled to lie down from twenty minutes to an hour after reaching fresh air. Fever, muscle cramps and joint pains are also present and the patient is the picture of misery. The symptoms terminate by a sort of pseudo-crisis with profuse perspiration, but the prostration may continue for several hours. Recovery is rapid and the patient is usually able to return to work the next day. The entire syndrome simulates that of an attack of acute malarial fever.

The case I observed occurred in a man, aged 23, an autogenous welder, forger and brazier, who had had frequent attacks which I interpreted as of malaria. He had spent a number of years in the South and had suffered from malarial infection repeatedly. Blood examination failed to reveal the parasite, however. Quite by accident the patient observed that his attacks would occur only after he had been brazing, never after forging or welding with acetylene-oxygen torch. He would feel apparently well until he reached fresh air, when, as he expressed it, he was suddenly "knocked out," sometimes hardly able to get home. He would experience a general lassitude akin to exhaustion, pain in chest and rawness of lungs, and a taste as of blood in the mouth accompanied by a sharp rigor and general contraction of the muscles of the chest, arms and legs. Dyspnea was pronounced at times. When the attacks were severe—which was always the case when he had been exposed to the fumes for several hours—he would be literally stricken dumb, unable to move or to call for help. He describes the sensation as being "similar to lockjaw." The worst attack he had lasted four hours. His distress was so great that I resorted to morphin, ¼ grain, and atropin, 1/100 grain which afforded relief. Sweat did not always follow the chills, nor was fever always present, and at no time did it exceed 101 F. The pulse was rapid and fairly strong, but he would tremble for hours after the paroxysm had subsided. He usually spent the next day or two out in the open air and then returned to work, apparently as well as ever. The repeated attacks reduced his weight from 136 to about 118 pounds within a few months.

As soon as I discovered that the brass fumes were the cause of all the trouble I cautioned him accordingly and recommended the installation of proper ventilation in the workshop. I advised him to engage in some other work between jobs instead of brazing continuously. He was given iron and arsenic for a long time and steadily improved until now he has regained his former weight and usual vigor. He has had several light attacks lately, but these were not sufficiently intense to force him to bed, and he was always in good condition after a night's rest. On several occasions he experienced great nervousness and a decided coarse tremor of the hands and arms and presented himself for treatment. Various remedies were resorted to, but none gave him the relief which was obtained by fifteen to thirty minutes' autocondensation treatment with about 600 to 800 milliamperes of the D'Arsonval current.

Hayhurst seems to think that fumes of molten brass or zinc form zinc carbonyl and that "the zinc is deposited as a slightly soluble compound in a very fine state of subdivision over the immense area of the respiratory surface," thus exerting its peculiar toxicity. It struck me that repeated attacks of this nature must necessarily have a disastrous effect on the pulmonary tissues after a while, just as is the case with stone-cutters, coal-miners, etc. A careful physical examination of the chest revealed nothing abnormal, but a radiograph of the chest showed that the fumes had effected many minor changes in the lungs, thus predisposing to tuberculosis or other infectious disease. Near the right hilum is a rarified area which is indicative of loss of lung tissue. It is probably a small cavity, the direct result of the death of pulmonary tissue which was caused by the inhaled toxic material. It is possible that this destruction accounts for the taste as of blood in the mouth.

I would suggest that more care be exercised in inquiring into a patient's occupation and the conditions under which he labors, especially if his disease is refractory to treatment.

304 Rhode Island Avenue, N. W.

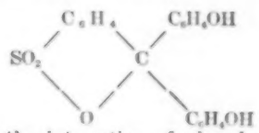
New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED BY THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION. THEIR ACCEPTANCE HAS BEEN BASED LARGELY ON EVIDENCE SUPPLIED BY THE MANUFACTURER OR HIS AGENT AND IN PART ON INVESTIGATION MADE BY OR UNDER THE DIRECTION OF THE COUNCIL. CRITICISMS AND CORRECTIONS ARE ASKED FOR TO AID IN THE REVISION OF THE MATTER BEFORE PUBLICATION IN THE BOOK "NEW AND NONOFFICIAL REMEDIES."

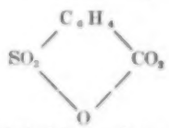
THE COUNCIL DESIRES PHYSICIANS TO UNDERSTAND THAT THE ACCEPTANCE OF AN ARTICLE DOES NOT NECESSARILY MEAN A RECOMMENDATION, BUT THAT, SO FAR AS KNOWN, IT COMPLIES WITH THE RULES ADOPTED BY THE COUNCIL.

W. A. PUCKNER, SECRETARY.

PHENOLSULPHONEPHTHALEIN. — Phenolsulphonephthalein,



is a product of the interaction of phenol and sulphobenzoic acid anhydride,



differing from phenolphthalein in that a CO group of the latter is replaced by a SO_2 group.

Actions and Uses.—Solutions of phenolsulphonephthalein injected into the tissues are readily absorbed, and are excreted mainly in the urine. A very small amount is excreted by the feces.

Phenolsulphonephthalein is used for determining the functional activity of the kidney. When injected intramuscularly or intravenously it begins to be excreted in normal cases in from five to ten minutes. In case of a deficient functional activity, the first appearance of its secretion is delayed. In normal cases almost the total amount is excreted within two hours, from 60 to 80 per cent. Failure to excrete nearly the full amount within two hours indicates a deficient functional activity, and the degree of this functional deficiency may be estimated by the proportionate amount excreted within two hours. (See *Jour. Pharm. and Exper. Therap.*, 1910, i, 595, THE JOURNAL, Sept. 2, 1911, p. 811, *Arch. Int. Med.*, March, 1912, p. 284.)

Dosage.—(See above references.) One Cc. of a sterile solution, containing 0.006 Gm. phenolsulphonephthalein as the monosodium salt, is injected into the lumbar muscles. Great care must be taken that all of the solution is injected.

From twenty minutes to half an hour before administering the test, the patient is given from 200 to 400 Cc. of water in order to insure free urinary secretion; otherwise delayed time of appearance may be due to lack of secretion.

Under aseptic precautions a catheter is introduced and the bladder completely emptied or the patient is allowed volun-

tarily to do so. Noting the time, 1 Cc. of a carefully prepared solution of the phenolsulphonephthalein containing 6 mg. to the cubic centimeter is accurately administered intramuscularly or intravenously by means of an accurately graduated syringe.

The urine is allowed to drain into a test-tube in which has been placed a drop of 25 per cent. sodium hydroxid solution and the time of the appearance of the first faint pinkish tinge is noted.

In patients without urinary obstruction the catheter is withdrawn at the time of the appearance of the drug in the urine, and the patient is instructed to void into a receptacle at the end of one hour and into a second receptacle at the end of the second hour.

When the passing of a catheter is disagreeable and no urinary retention is present its use can be dispensed with and the time of appearance of the drug disregarded.

The urine collected is made alkaline with a 25 per cent. solution of sodium hydroxid and then diluted to 1 liter. The solution is thoroughly mixed and a small filtered portion taken to compare with the standard which is used for all of these estimations. Comparison is made in a colorimeter, a special form of which has been devised for this purpose.

Phenolsulphonephthalein is a bright red crystalline powder, slightly soluble in water and in alcohol with formation of a yellow solution; it is insoluble in ether. It is soluble in dilute alkalies with formation of a solution whose color is a purer red than alkaline phenolphthalein, while a strongly alkaline solution is purple. In solution it is sensitive to carbonic acid just as phenolphthalein is. It is readily soluble in sodium carbonate solution and shows stronger acid properties than any of the related phthaleins. The substance at first has a slightly sweetish taste which changes to a disagreeable bitter taste.

Proprietary preparation:

PHENOLSULPHONEPHTHALEIN—H. W. & Co.—Phenolsulphonephthalein made by a special process and said to be exceptionally pure.

Manufactured by Hynson, Westcott & Co., Baltimore, Md. No U. S. patents or trademarks.

Phenolsulphonephthalein Ampoules.—Ampules containing 1 Cc. of a sterile solution of 0.006 Gm. phenolsulphonephthalein, in the form of the monosodium salt.

STERILE AMPOULES OF MERCURY SALICYLATE.—This dosage form of an accepted non-proprietary article has been accepted.

Each ampule contains 0.06 gm. (1 grain) of mercuric salicylate suspended in a mixture of vegetable fats which are solid at 34.4 C. (94 F.) but liquid at body temperature.

Dosage.—The ampule is immersed in warm water until the fat is liquefied, agitated, opened, and the contents injected through a 20-gage needle. This preparation should not be injected intravenously.

Prepared by Hynson, Westcott and Co., Baltimore, Md.

SALVARSAN—EHRLICH, SUSPENSION IN AMPOULES.—This preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies.

Each ampule contains 0.10 gm. (1½ grains) of salvarsan suspended in a mixture of vegetable fats, which are solid at 34.4 C. (94 F.), but liquid at body temperature.

Dosage.—The ampule is immersed in warm water until the fat becomes liquefied, agitated, opened and the contents injected through a 20-gage needle. This preparation should not be injected intravenously.

Prepared by Hynson, Westcott and Co., Baltimore, Md.

NEOSALVARSAN—EHRLICH, SUSPENSION IN AMPOULES.—This preparation has been accepted for inclusion with the appendix to New and Nonofficial Remedies.

Each ampule contains 0.15 gm. (2 3/10 grains) of neosalvarsan suspended in a mixture of vegetable fats which are solid at 34.4 C. (94 F.), but liquid at body temperature.

Dosage.—The ampule is immersed in warm water until the fat is liquefied, agitated, opened, and the contents injected through a 20-gage needle. This preparation should not be injected intravenously.

Prepared by Hynson, Westcott and Co., Baltimore, Md.

Therapeutics

CALCIUM

(*Concluded from page 207*)

CALCIUM IN PREGNANCY

Many investigations have shown that during pregnancy and the puerperium there is a diminished amount of calcium in the blood. A large amount of calcium is needed during pregnancy for the growth of the fetus, and immediately after parturition the diminished amount of calcium in the blood is probably due to its being excreted in the milk. It has been suggested[5] that this withdrawal of calcium may cause a fatty infiltration, and later, fatty degeneration of the liver-cells, and therefore a disturbed function of the liver. If this be true, it would seemingly contra-indicate the administration of chloroform during labor if calcium were thought to be deficient, the tendency of chloroform to cause liver disturbances being now well recognized.

If the calcium is much diminished in the blood, the parturient woman may have considerable uterine hemorrhage. This might not be a disadvantage, if a deficient liver caused toxemias of the blood and a tendency to eclampsia. Free uterine hemorrhage is of advantage as a preventive of eclampsia during and after parturition.

While some more recent investigations by Linzenmeier[6] have shown that in the blood of some pregnant women, at least, there is an increased proportion of calcium, and that there may not be a decrease of calcium during eclampsia, the need of the body for an extra amount of calcium during pregnancy is unquestionable. The corollary to the proposition that a lime deficiency is likely to be always more or less in evidence during pregnancy, and that it is macroscopically shown by the decay of the teeth during this condition, is that pregnant women should be given calcium salts medicinally and considerable amounts of foods rich in calcium.

It is also quite possible that, if the mother has a deficient supply of lime, the fetus may start its life handicapped by a lime deficiency, its bones may not grow properly, its teeth may not erupt properly, and even later the teeth may decay quickly. Be this supposition correct or incorrect, the mother should certainly receive foods rich in calcium during pregnancy and during lactation. These foods are cheese, milk, yolk of egg, spinach, beans, peas and many fruits. Bread, the white of egg, rice and potatoes contain little calcium, and meat a very small amount.

LIME IN RICKETS AND OSTEOMALACIA

There is no question of the fact that lime is deficient in these diseases. It is only in rare instances, however, that the patients are taking food that is seriously deficient in calcium; usually there is, instead, a faulty calcium metabolism. Therefore, the administration of calcium as a drug to these patients does not give satisfactory therapeutic results. It seems to be a fact that bottle-fed infants, even when given cow's milk, are more likely to suffer from rickets than is the breast-fed infant. It is quite probable that some internal secretion necessary for perfect nutrition is secreted in the mother's milk, may be absent in cow's milk, and hence bottle-fed children may not receive it. It is also quite probable that some children, even if breast-fed, suffer from cal-

5. Drennan: Am. Jour. Obstet., April, 1911.
6. Linzenmeier, G.: Der Kalkgehalt des Blutes in der Schwangerschaft, Zentralbl. f. Gynäk., June 28, 1913, p. 959.

cium malnutrition because of defective secreting glands in the mother. Also, one or more of the glands of internal secretion in such defective children may be acting insufficiently.

Many infants who do not develop rickets have disorders of digestion, and these are markedly benefited by the administration of calcium as a medicine. On the other hand, it can do no harm to administer calcium to rachitic patients. Small doses of pituitary extract may be of benefit in this disease. Thymus feeding has apparently failed to be of value.

LIME IN SPASMOPHILIA, TETANY AND INFANTILE CONVULSIONS

This subject has been recently discussed[7] in this department. Suffice it to say that disturbances of the parathyroid glands are more or less closely related to these conditions, and it has been found that the administration of calcium is as beneficial as that of parathyroid substance is. Hence calcium is indicated as a part of the treatment in all of these conditions. Even gastric tetany has been benefited by the administration of the calcium salts.

CALCIUM AND ARTERIOSCLEROSIS

Recently, Scandola[8] has stated his belief that in arteriosclerosis there is a retention of calcium in the tissues, on ordinary diets, and he believes that this retained calcium is likely to promote the progress of the disease and be an important factor in the deposition of calcium salts in the arterial system. He finds that nothing promotes the elimination of calcium more than the use of foods that contain little calcium, such as bread, potato, rice and meat. Cheese, milk, eggs and many fruits should be avoided.

PREPARATIONS OF CALCIUM

Calcii Chloridum, U. S. P. — This is a white salt, very deliquescent, soluble in water, an irritant, with a sharp, salty taste. It has many disadvantages and no special advantages over calcium lactate; therefore, the lactate should be the salt most frequently used. The dose of calcium chlorid is given in the Pharmacopeia as 0.50 gm. (7½ grains), but the dose of 0.30 gm. (5 grains) is sufficient. It is generally administered three times a day, after meals, and may be given every three hours for several doses, if deemed advisable. As it is irritant, it should always be given either on an empty stomach or dissolved in some thick syrup and water, or in glycerin.

		Gm. or c.c.		
℞	Calcii chloridi	6		gr. lxxx
	Glycerini	50	or	fl. ℥iss
	Aqua menthae piperitae q. s. ad	100		fl. ℥iii

M. Sig.: A teaspoonful, in plenty of water, three times a day, after meals.

Syrup of tolu may be substituted for the glycerin. Or syrupus calcis, U. S. P. (a syrupy preparation of calcium oxid) may be administered in 2 c.c. (30 minim) doses.

Liquor Calcis, U. S. P. — Lime-water is a bland, non-irritant watery solution of lime (calcium oxid), used internally as a mild antacid. Probably very little calcium, either in this preparation or in the syrup of lime, is absorbed, and the action of these preparations is largely on the bowels. They tend to cause constipation, and are often of benefit (particularly the lime-water) in diarrheas, especially in infants. Lime-water is often added to milk, not only to increase the calcium content, but to prevent the acid of the stomach from causing rapid coagulation with the formation of large curds, since small curds are more easily digested. As lime-water is a harmless preparation, the amount added to an infant's milk should not be too small, and one, two or three teaspoonfuls may be added to each or to every other feeding, dependent on the age and the condition of the child. Externally, lime-water in equal combination with linseed oil forms linimentum calcis, U. S. P. (carron oil), a soothing alkaline protective, which has been used for many years as a sedative for the skin, especially in burns.

Calcii Lactas, N. N. R. — Calcium lactate is a calcium salt of lactic acid. It is much less irritant than the chlorid, and is valuable when a calcium salt is indicated. It occurs as an odorless, tasteless powder, not very soluble in water, requiring twenty parts of cold water to dissolve it. The dose is about 0.30 gm. (5 grains). It is best administered in powder, taken well diluted, or with milk or after meals.

Calcii Glycerophosphas, N. N. R.—Calcium glycerophosphate is the normal calcium salt of glycerophosphoric acid. It is a fine white powder, without odor or taste, practically insoluble in water, and is best administered in powder, tablet or capsule. The average dose is 0.30 gm. (5 grains) three times a day, after meals. This is probably the best salt of calcium to administer for nutritional results.

Compound syrups of glycerophosphates, as *calcii hypophosphis*, U. S. P., and *syrupus hypophosphitum compositus*, U. S. P., are superfluous preparations.

The *precipitated calcium carbonate* and *prepared chalk* may be used internally, but are most used externally. They are mild alkalies, and tend to cause constipation. The official chalk mixture (*mistura cretae*, U. S. P.) is a harmless simple preparation. If it is desired to give a child chalk, however, it had better be given in powder form and added to whatever nutriment (as barley water, or milk) the child may be receiving. Chalk mixture must be well shaken, and the dose the child would receive is indefinite.

The precipitated calcium phosphate is a preparation that has been greatly used and recommended in bone disturbances. It is an insoluble, white, tasteless and odorless powder. The Pharmacopeial dose is 1 gm. (15 grains). Unfortunately, calcium phosphate cannot be transferred as such from the intestine to bone structure; the calcium must be entirely metabolized in whatever form it is offered, and therefore this powder in its large (bulky) doses is not needed. The glycerophosphate is a better preparation.

7. Infantile Convulsions, Therapeutics, THE JOURNAL A. M. A., Dec. 6, 1913, p. 2067.
8. Scandola: Gaz. d. Osp., Sept. 7, 1913., p. 1111.

Rat Prevention in Cities.—Sewers harbor and provide the means for the spread of rats. The rat-proofing of the city cannot be accomplished until the sewers of the city are made practically rat-proof. Rats enter and leave sewers principally through openings in corner catch-basins. Corner catch-basins are unnecessary in general sewer construction, and should be installed only when conditions require them. Mechanical and water-traps are unnecessary in properly designed catch-basins and should be omitted. Catch-basins, unless designed to permit prompt and direct discharge of sediment into the sewer, should be cleaned at least three times a year. Water-sealing traps should be frequently replaced and oiled to prevent development of mosquitoes.—Friench Simpson, *Pub. Health Rep.*

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THE CAUSATION OF CERTAIN ANIMAL TUMORS

The discovery of ultramicroscopic agents of infection in the form of so-called filterable viruses came at a period in the study of certain diseases when the hope of finding a responsible micro-organism, to the existence of which all the evidence strongly pointed, began to approach the stage of despair. The long story of unsuccessful attempts to isolate and cultivate an organism responsible for yellow fever, and the more recent experiences with the causative agent in anterior poliomyelitis which is now known to pass through filters that were at one time relied on to obstruct entirely the passage of pathogenic organisms, are fresh in the minds of those who have followed the progress of the study of infectious diseases. Without committing us to any etiologic theory of cancer, the preceding fragments of the history of medical science must be kept in mind whenever we are informed that micro-organisms can have no importance in the causation of malignant growths.

The persistent assertions that the factors already established are sufficient to explain the origin of cancer express the convictions of pathologists who have primarily been interested in the careful study of the structure of pathologic tissues. The repeated failures to substantiate the constant presence of parasitic micro-organisms in human cancer have led to an unduly skeptical attitude toward everything that smacks of microbiotic possibilities. The recent experiments of Peyton Rous of the Rockefeller Institute for Medical Research have supplied the proof of filterable agencies which can induce body-cells in animals to proliferate in such a manner that certain kinds of animal cancer result. To the two chicken-tumors for which Rous and his collaborators have found the cause in filterable entities, a third has now been added.[1] These types of spontaneous chicken-tumors thus far discovered include a pure spindle-cell sarcoma, an osteochondrosarcoma and a peculiar spindle-cell sarcoma fissured by blood-sinuses. Despite the fact that the three transferable neoplasms are very unlike both histologically and in their general behavior, the entities causing them appear to have much in common. Not infrequently thus far the filtrates prepared under the best conditions from malignant material have proved entirely innocuous. This is doubtless due to the narrow mechanical limits within which the causative agents are filterable. When growths are engendered by a Berkefeld filtrate passed through cylinders which are impermeable at the same test to small bacteria, they have the distinctive characters of the strain of tumor which furnished the material for filtration. Two of these new causative agents retain their activity in tumor-tissue that has been dried or glycerinated. All are strikingly dependent for their action on derangement of the tissue with which they are brought into contact. When this factor is supplied, for example, by the addition of kieselguhr powder to the filtrate, the percentage of fowls that develop tumors is much increased, and the growths themselves appear sooner and enlarge more rapidly. The kieselguhr, injected alone, does not cause tumors. A limpid tumor-filtrate injected into the breast-muscle finds its point of action in the track of the injecting needle, and there results a discrete growth from one center. When powdered kieselguhr has been added, the growth is multicentric, and appears all at once as a mass of coalescing foci. In fowls inoculated intravenously with a chicken-tumor filtrate the tumors have been found to arise at sites of tissue derangement.

The newer researches strongly suggest that the causative agents of these animal tumors are of about the same size and of the same natural class. We endorse the modest conclusion of the Rockefeller Institute investigators that "it is perhaps not too much to say that their recognition points to the existence of a new group of entities which cause in chickens neoplasms of diverse character." This is, indeed, a step in the direction of scientific progress.

1. Rous, Peyton, and Murphy, J. B.: The Causation by Filterable Agents of Three Distinct Chicken Tumors, Jour. Exper. Med., 1914, xix, 52. Rous, Peyton: Transmission of a Malignant New Growth by Means of a Cell-Free Filtrate, THE JOURNAL A. M. A., Jan. 21, 1911, p. 198. Rous, Peyton, Murphy, J. B., and Tytler, W. H.: A Filterable Agent the Cause of a Second Chicken-Tumor, an Osteochondrosarcoma, THE JOURNAL A. M. A., Nov. 16, 1912, p. 1793. Rous, Peyton, and Lange, L. B.: The Characters of a Third Transplantable Chicken Tumor Due to a Filterable Cause: a Sarcoma of Intracanalicular Pattern, Jour. Exper. Med., 1913, xviii, 651.

THE PATHOGENICITY OF AMEBAS

At the biennial conference of the Far Eastern Association for Tropical Medicine, held recently at Saigon, Walker and Sellards[1] reported some interesting results of the experimental feeding of different species of amebas to human beings. Their work was unique not only in the number of comparative tests made of different species, but also in the thorough determination of the species of organism fed.

In all, sixty tests were made, embracing twenty feedings of artificially cultivated amebas representing thir-

1. Walker and Sellards: Experimental Entamoebic Dysentery, Third Biennial Conference, Far Eastern Association of Tropical Medicine

teen strains and eight species, twenty of *Entamoeba coli* and twenty of *Entamoeba histolytica*. In the first series — the feeding of cultivable species of amebas — it was usually possible to recover the organisms on suitable mediums during the first few days, but not subsequently, nor did later microscopic examination establish their presence. In none of these cases was there a resultant dysentery. Of the subjects fed with *Entamoeba coli*, seventeen became parasitized at the first feeding, after incubation periods of from one to eleven days. None of the seventeen developed dysenteric symptoms, nor was it possible in any of them to obtain the organism by means of cultivation methods. Of the twenty volunteers fed with *Entamoeba histolytica*, seventeen became parasitized after the first feeding, one required three feedings to become parasitized, and the two remaining were held as controls. The incubation period in these seventeen cases varied from one to forty-four days; the incubation period of the dysenteric symptoms which developed in four of the parasitized subjects, was on the average sixty-five days, the shortest being twenty, the longest ninety-four. In the stools of those fed only with motile *Entamoeba histolytica*, protected artificially from the gastric juice, it was possible to find exclusively encysted *Entamoeba tetragena*, and vice versa, while in one case, of a man fed only with tetragena cysts, there were alternations, several times repeated, of tetragena cysts and motile *Entamoeba histolytica*. Of peculiar significance are the facts that no cases of dysentery developed in men who ingested *Entamoeba histolytica* from an acute case of entamebic dysentery or from one of liver abscess, while all the successful productions of dysentery resulted from the feeding of *Entamoeba histolytica* from the normal stools of "carriers." Artificial cultivation of *Entamoeba histolytica* was in no case found possible.

From the foregoing results Walker and Sellards conclude that: 1. The cultivable amebas not only are non-pathogenic to man, but are also incapable of parasitic infestation of the human alimentary tract. The fact of their occasional cultivation from human stools they consider is due either to cultural contaminations or to the passage of accidentally ingested encysted amebas. 2. *Entamoeba coli*, while being an obligative parasite, is non-pathogenic, and is not concerned in the causation of endemic tropical dysentery. 3. *Entamoeba histolytica*, like *Entamoeba coli*, is an obligative parasite, and as such is the causative factor in entamebic dysentery. Further, *Entamoeba histolytica* and *Entamoeba tetragena* are simply variant forms in the life cycle of the same organism.

In the way of practical results, Walker and Sellards point out that with the exclusion of *Entamoeba coli* as a cause of dysentery, the indiscriminate treatment of all persons showing entamebas in their stools becomes unwarranted, and that a recognition of the specific *Entamoeba histolytica* should be an essential precedent for such treatment. They consider it probable that the motile forms found in the acute stages of the disease have little to do with its transmission, which they believe is probably due to the ingestion of the more resistant encysted forms derived from "carriers." Prophylaxis, therefore, in their opinion, should be directed toward (1) the identification of "carriers" by the systematic examination of stools of all persons whose history or occupation would fit them for such a rôle; (2) the sanitary disposal of feces; (3) treatment of "carriers," controlled by stool examinations, and (4) precautionary examination of the stools of all persons living in endemic regions, in the effort to recognize the organism while the disease is still in the sometimes prolonged period of incubation.

GORGAS APPOINTED SURGEON-GENERAL

The announcement that the President has nominated Col. William C. Gorgas as Surgeon-General of the Army of the United States, with the rank of brigadier-general, will be received with approval, not only by the medical profession, but also by the public. Probably not since the days of the Civil War has it been possible for a President to make an appointment that will cause so much general satisfaction. The people of the United States justly regard the construction of the Panama Canal as one of the great achievements in our national history. From the point of view of the constructing engineer, its completion, in advance of the estimated time and at less than the estimated cost, is a triumph for American engineering skill, for the Army engineer and for West Point training.

For his masterly ability as an organizer and administrator, highest praise is due to Colonel Goethals, and any reward which Congress or the President may see fit to confer on him will be well deserved; but the mechanical construction of the Panama Canal differs from other engineering feats only in size. The work of the Sanitary Department under Colonel Gorgas has not only been the greatest task of sanitation that has ever been undertaken, but it is also unique and epoch-making. For the first time in human history a region which, since the earliest traditions of civilization, has been regarded as a plague spot in which it was impossible for civilized man to live and work, has been converted into a place fitted for enjoyable habitation and labor, with a death-rate below that of the most modern cities. Such an achievement is not only of the most vital importance in making possible the construction of the canal, but it also has a broader and a far greater significance. It is a practical demonstration on a large scale of the possibilities of preventive medicine and of the application of scientific discoveries of the past fifty years in the prevention of disease.

While the general public will most readily grasp the importance of this work on account of its humanitarian aspect, the world of business has been convinced, as never

before, of the practical commercial value of modern sanitation. Regions of the earth which have heretofore been closed to civilized man are, through Colonel Gorgas' work, made as habitable as any portion of our own country. Any section of the earth can now be developed, provided the cost of proper sanitation is provided. And in view of the results the cost is not prohibitive, but is a sound financial investment. Municipal and community health can be bought like any other commodity, and the responsibility for a high death-rate rests directly on those in authority. The public can fix its own death-rate by the amount it is willing to spend. These are new discoveries for civilization. Colonel Gorgas has worked them out to a positive demonstration. No matter what the future may have in store, civilized man can never recede to his old position of fatalism, resignation or indifference to the ravages of epidemic disease.

While Colonel Gorgas' work as canal commissioner and head of the Department of Sanitation has, perhaps, attracted more public attention than any other of his achievements, his long experience as a sanitarian, his noteworthy work in cleaning up Havana, his response to the request for his experience and advice at Guayaquil and in South Africa all furnish corroborative evidence, if any were needed, of his fitness for the high office to which President Wilson has appointed him. Graduating from medical college in 1879, and entering the Army Medical Corps in 1885, nearly his entire professional life has been passed in the government service. In 1903 he was promoted to the rank of colonel by special act of Congress, in recognition of his distinguished services. It is characteristic of the man and of the profession which Colonel Gorgas represents so well, that no reward in the form of great wealth will be his, nor would it be considered or accepted. The promotion which is his by right of seniority and which he has doubly earned by achievement, the holding for a few years of the position as Surgeon-General until the time for his retirement comes, the quiet and peaceful years of rest which he has so well earned, the satisfaction of work well done for the good of humanity—these are the modest rewards which will be bestowed on Colonel Gorgas, and they are the only rewards which would be worthy of the man, of his profession and of his monumental work.

FEVER AND DRUGS

Medical literature cannot be said to lack a liberal quota of contributions relating to fever. The theories and facts contributed to this subject might be presented in an almost endless array; yet there cannot be said to exist to-day a consensus of opinion as to the underlying mechanism, the factors which facilitate and maintain the existence of prolonged rise of temperature. Much of what has been written in the past about heat centers and temperature regulation is so vague and indefinite that, in not furnishing a guide for rational procedure in practice, it fails to serve the best purpose of hypothetic generalizations. For this reason it seems desirable to rehearse at some length the theory of fever and its treatment which was outlined by the Viennese pharmacologist H. H. Meyer at the last meeting of the German Congress for Internal Medicine.[1]

Owing to the fact that the production of heat in the body involves a chemical mechanism, whereas the dissipation of heat is accomplished by physical processes, and inasmuch as these two sets of phenomena manifest themselves at quite different places in the body, obviously some device must exist for the adjustment to each other of these two somewhat antagonistic processes. Precisely how the regulation of body temperature is accomplished with the nicety that prevails in the mammalian organism is a problem that has long called for elucidation. Admittedly, heat is lost from the body by the cooperation of a number of agencies that are well appreciated. The varying vascularity of the skin, the participation of the sweat-glands, etc., are features too familiar to call for detailed reference. It is not enough, however, to say that temperature regularity is maintained by variations either in heat dissipation or in production alone. To cite a single illustration, chemical reactions (which lead to heat production in the laboratory) are facilitated by heat and retarded by lowering temperatures; yet in the body, on the contrary, lowered temperature actually leads to an augmented heat production. Such considerations strengthen the conviction that there must be one or more central regulatory stations which effect a constancy of body temperature, despite the alterations in the discharge or liberation of heat which may arise in the individual seats of these responses.

That the central thermoregulator is located in the brain now seems undeniable; for when this organ is severed from the rest of the body a regulation no longer exists, and body temperature becomes adjusted to the environmental temperature, precisely as in the lower animals. Admitting the existence of central thermoregulatory devices, it becomes more than likely that every persistent alteration in body temperature, such as the rise in fevers or the fall in acute collapse, is connected with a change in the condition of the central regulatory mechanism.

Meyer postulates the existence of two groups of heat-regulating centers—the one thermogenic, leading to a conservation or production of heat in the body; the other thermolytic, facilitating heat dissipation and reduction of temperature. Both centers can be excited reflexly from the periphery, and they can also be inhibited. The conceptions here evolved are by no means new; but the evidence for the double regulatory device is growing from year to year. Barbour has actually succeeded in demonstrating that regulation may even be brought about by the effect of changing temperature directly at the centers in the corpus striatum. The local applica-

1. Meyer, H. H.: Theorie des Fiebers und seine Behandlung, Referat., Verhandl. d. deutsch. Kong. f. inn. Med., 1913, xxx, 15.

tion of heat there is attended by a fall in body temperature, and conversely. According to Meyer, fever is the expression or consequence of an exaggerated excitability or irritability of the thermogenic center. When this arises it is not unlikely that the antagonistic cooling center is correspondingly inhibited, that is, rendered less susceptible to warmth. The thermogenic mechanism of control is believed to be a part of the sympathetic nervous system, in harmony with the fact that this system is known to be stimulated in conditions of hyperthyroidism, for example, in which tendencies to rise in temperature are not at all unusual. The conjecture likewise arises that the thermolytic mechanism is a part of the autonomic nervous system; for drugs such as picrotoxin, veratrin and digitalin, which undoubtedly stimulate autonomic centers like that of the vagus, occasion a fall in temperature.

Any factor, whether physiologic or pharmacologic, which affects the irritability of these regulatory centers, can alter the level at which the temperature regulation of the body is maintained. If the susceptibility of the thermogenic center be increased or depressed, a sustained rise or fall of body temperature correspondingly ensues; and similar conclusions apply to alterations in the antagonistic centers. It is interesting to apply the reasoning to the conditions of practice. In deficiency of thyroid or hypophyseal functioning a tendency to subnormal temperature arises, a sign perhaps that with the lack of the glandular secretion the irritability of the thermogenic center is lowered. In fevers, on the contrary, the heating center is hyperexcitable, the cooling center depressed. Like all other overworked nervous centers, those related to the temperature regulation are fatigued more easily when in a state of overstimulation. Hence it is that the febrile person may experience a fall of temperature below his febrile normal after a cold bath, whereas the person in health responds to the cooling stimulus by prompt adjustment to the normal level. Greater interest centers in the interpretation of the action of antipyretic drugs in the light of the present hypothesis. Some of them, like quinin, antipyrin, acetanilid, etc., may be regarded as mild narcotics for the excited thermogenic center. Undoubtedly they also increase the loss of heat in diverse ways; but this would always be compensated by a renewed effort of the body to adjust to the febrile temperature norm, were not the heat center depressed at the same time by the antipyretic. The relation of drugs to the cooling centers is not so clear, but it seems probable according to Meyer that aconitin and veratrin act antipyretically by stimulating, that is, increasing, the susceptibility of the cooling centers. Whatever may be the final fate of the foregoing formulation of the relation of drugs to febrile temperatures, it can only be helpful to have some intelligible basis for therapeutic procedure, even if it be in part merely a temporary undemonstrated hypothetic expedient.

WHAT BECOMES OF THE PROTEIN DIGESTION PRODUCTS?

The study of the phenomena of nutrition is making rapid progress nowadays. So far as the rôle of the proteins is concerned, attention has become centered in the amino-acids as the fundamental food fragments with which all theories of nutrition must now be concerned.[1] So long as it was still assumed that the proteins are absorbed in a form relatively like the original foodstuff — for example, as proteoses or complex polypeptids — the theory of their subsequent metabolism had to be framed somewhat differently from that suggested by the conclusions of the most recent writers who assume that a more complete disintegration takes place in the digestive tract. To say that we absorb our protein intake in the form of amino-acids is, however, a long way from explaining the subsequent stages by which the ingested nitrogen becomes a part of the tissues.

The latest studies of Van Slyke and Meyer[2] of the Rockefeller Institute for Medical Research make it clear that absorbed amino-acids rapidly disappear from the blood as it circulates through the tissues. This disappearance from the circulation seems to be the result neither of the destruction of the amino-acids nor of their synthesis, nor yet of chemical incorporation into the cell proteins. They are somehow merely taken up by the tissues without undergoing any immediate change. In the case of the muscles, for example, a fairly definite saturation point exists, which appears to set the limit to the amount of amino-acids that can be absorbed. Van Slyke and Meyer have expressed the situation by saying that the amino-acids of the blood appear to be in equilibrium with those of the tissues — a condition which would account for many observed phenomena, such as any transfer of amino-acids which may occur from organ to organ, or from maternal organs to fetus.

It is unlikely, we are told, that the process by which the amino-acids — the real nitrogenous pabulum of the organism — are taken up and held by the tissues is wholly osmotic. Probably other factors, such as mechanical adsorption or the formation of loose molecular compounds between the amino-acids and the tissues, play a part. In any event the amino-acids do not remain long unaltered in the body, but disappear more rapidly from the liver than from any other organ to which they find their way. During the period, for example, required by the liver to rid itself entirely of absorbed amino-acids their concentration in the muscles suffers no appreciable fall; nor are the other organs — the kidneys, intestines, pancreas or spleen — markedly depleted. The long-

1. In What Form are Protein Digestion Products Absorbed? editorial, THE JOURNAL A. M. A., Dec. 20, 1913, p. 2245.
2. Van Slyke, D. D., and Meyer, G. M.: The Fate of Protein Digestion Products in the Body: III, The Absorption of Amino-Acids from the Blood by the Tissues, Jour. Biol. Chem., 1913, xvi, 197; IV, The Locus of Chemical Transformation of Absorbed Amino-Acids, ibid., p. 213; V, The Effects of Feeding and Fasting on the Amino-Acid Content of the Tissues, ibid., p. 231.

defended dominance of the liver in the destructive metabolism of proteins is thus upheld by a new kind of evidence gained from a new point of view. While the muscles retain their quota of absorbed amino-acid tenaciously, the liver is pictured by Van Slyke and Meyer as continually desaturating itself by metabolizing the amino-acids which it has absorbed, and consequently maintaining indefinitely its power to continue to remove them from the circulation, so long as they do not enter it faster than the liver can degrade them. When the amino-acids reach the circulation too rapidly, or when the liver is pathologically degenerated, the familiar safety-valves of the body act. The kidneys now assist in removing the accumulated amino-acids by excreting them unchanged, precisely as an excess of circulating sugar is excreted in hyperglycemia. Finally, when the above-named agencies for preventing undue accumulation of protein digestion products are overtaxed, death may result.

These are new physiologic pictures in which the amino-acids are represented serving as a reserve supply of energy, like glycogen, or as a reserve of tissue-building material. They must soon become more familiar even to the busy practitioner; for they furnish a clearer and more promising outlook than could be gained in the hazy uncertainty which has so long surrounded the progress of digested protein through the organism.

Current Comment

THE TOXICITY OF EXPIRED AIR

The question whether or not expired air contains substances of unknown composition that have toxic action when introduced into the body by rebreathing or other means has been the subject of numerous investigations. The subject is of some theoretical but of greater practical interest in ventilation. From time to time positive findings have been reported, only to be challenged and denied by other investigators using the same methods more carefully controlled, the net result of all this work pointing to the conclusion that such toxic substances either are not present or are so greatly diluted that they play no rôle in ventilation. This left ventilation engineers and practical hygienists to deal with the temperature, the humidity, the carbon dioxid and unpleasant but non-toxic odors of the expired air. The old question took a new turn in 1911, when Rosenau and Amoss[1] reported their anaphylactic experiments with condensed exhalations from human beings. The experiments were positive, the guinea-pigs being sensitized by injections of the liquid condensed from the expired air, and the conclusion was drawn that the expired air contains a volatile protein or proteins of unknown composition. It does not follow from the work of Rosenau and Amoss that this protein is toxic or that it can be absorbed from the respiratory tract of the same species or different species. Recently the experiments of Rosenau and Amoss have been repeated with more careful controls by Weisman[2] at Columbia University. This investigator could not confirm Rosenau and Amoss on any point. Weisman's guinea-pigs were not sensitized by the isotonic condensation liquid from the human breath, nor did this liquid produce any toxic effect whatever in the guinea-pig even when injected in large doses. The work of Weisman appears to be carefully controlled, but it will probably not close this interesting chapter of respiration physiology.

1. Rosenau and Amoss: Jour. Med. Research, 1911, xxv, 35; discussed in Organic Matter in Expired Air, editorial, THE JOURNAL A. M. A., Sept. 23, 1911, p. 1059.

2. Weisman, C.: Biochemical Studies of Expired Air in Relation to Ventilation, Easton, Pa., 1913.

FEEBLE-MINDEDNESS AS A CONSTITUTIONAL ANOMALY

The current emphasis on the rôle played by heredity in determining the make-up and functioning of the normal person has again brought into prominence the idea of constitutional defects as important factors in various manifestations of disease. The use of the term "constitutional" in relation to abnormalities of the organism is intended to contrast them with localized defects. It refers to a perverted behavior which pervades many, if not all, of the organs of the body instead of being limited to some definite region or isolated tissue. So long as the older type of pathologic anatomy was the dominant feature in the interpretation of diseased states it seemed almost inevitable to attempt to correlate each perversion of health with some specific, localized anatomic region—in other words, to find the definite seat of each disease. Of late, however, the still somewhat vague yet suggestive conception of constitutional defects is coming into vogue. The various so-called "diatheses" are gaining consideration as an expression of something more than an indefinable attribute of disease. Constitutional anomalies are thus becoming contrasted with localized defects. As expressed by a recent writer, the conception of constitutional anomaly "stands out as a minus variation from a normal standard and is characterized by the two significant marks of (more or less) generality and of inheritability." Dr. Amos W. Peters of the Training School at Vineland, N. J., has contended[3] that feeble-mindedness in general and from the point of view of its pathologic analysis should be regarded as a constitutional anomaly of the individual, which he has either inherited or acquired. As he points out, according to this hypothesis feeble-mindedness is not an isolated psychologic or even an isolated brain phenomenon, but is constitutional, general and far-reaching throughout brain and body. The importance of this view lies primarily in the fact that it points to the necessity of investigating the problems of the feeble-minded in directions additional to the customary psychologic, psychiatric or anatomic paths of scientific attack. So far as the broader sociologic aspects of the situation are concerned, one of the chief considerations undoubtedly is the prevention of the increase in the number of the feeble-minded. Here the potent influences of heredity must

3. Peters, A. W.: Feeble-Mindedness as a Constitutional Anomaly, Training School Bull., 1913, x, No. 1.

be confronted; but so far as feeble-mindedness is in any way likely to find remedial agencies, it marks a step in the direction of progress to deal with the purely physiologic aspects of the unfortunate situation. Particularly so far as acquired feeble-mindedness is concerned, that is, feeble-mindedness which may not primarily be hereditary in its origin, the most hopeful prospect appears in the search for a physiologic basis of the constitutional anomaly. Perverted function not infrequently finds an expression in various defects of metabolism. Here, then, is a possible land of promise for future research. Certain preliminary results, such as indications of abnormalities in the calcium metabolism of defectives of the Mongolian type already reported,[2] represent beginnings in this attempt to develop a physiologic pathology of the feeble-minded.

SUBSEQUENT HISTORY OF PATIENTS DISCHARGED FROM TUBERCULOSIS SANATORIUMS

In the excellent series of monographs published by the department of health of the city of New York is a report of an investigation begun in 1908 by the Council of Jewish Women to determine the status of patients discharged from tuberculosis sanatoriums. The information covered about a thousand patients discharged from a number of sanatoriums. The investigators were able to report on 554 of these, 100 of whom were dead. A difficulty that is encountered in all such investigations is the fact that a large number of those who have been discharged from the institution cannot be traced. The investigators debated whether such cases should be numbered largely among those dead or whether they are to be regarded as representative of the average and excluded from the calculation. The latter course is the one adopted, since it is shown that the number of deaths comes largely from the class discharged as improved or unimproved, while the investigation shows that those registered as "no trace" are drawn proportionately from all classes. The results show a steadily increasing number of deaths after discharge from the sanatorium, indicating a rather discouraging outlook for the sanatorium treatment. No satisfactory comparison can be made, however, because there are no data to show the outcome of similar cases without sanatorium treatment. What is really shown is that the sanatorium helps for a while and stimulates the patient to fight the disease better than he otherwise could. The social survey, however, shows what is yet but imperfectly recognized although repeatedly called to notice, namely, that the tuberculosis problem is a sociologic rather than a medical one. The majority of those discharged return to conditions which render the fight all but hopeless. Dark, insanitary tenements, fatiguing and poorly paid work, and lack of necessary care meet the discharged patient on his return from the sanatorium, and it is no wonder that the sanitary instructions of the institution are soon forgotten from sheer inability to apply them. To meet this difficulty, improvements in our methods are needed, both from a medical and from a sociologic point of view. The necessity of more sanatoriums so as to provide the patient with an opportunity to stay until better able to meet adverse conditions is evident. A more efficient medical supervision after the patient leaves the sanatorium is imperative. This can be promoted by the establishment of farm colonies or institutions where the patient can carry on his work under medical supervision. A sympathetic social control is needed that shall establish intimate confidential relations with the patient on entering the sanatorium, find out his home environment and provide for its improvement before his return, if necessary. This help should continue after his discharge and should provide for occasional reexamination.

2. Peters, A. W.: Progress in Biochemical Research, Training School Bull., 1913, Vineland, N. J., x, No. 2.

RESEARCH IN MEDICAL MISSIONS

Wellman[1] says that it is not generally known that extensive use is made of our knowledge of tropical diseases by the medical missions in various parts of the world. He says also that these missions accomplish some of the best research in these diseases, in addition to teaching and applying scientific medicine among people who would otherwise be debarred from its benefits. In China it is said that there are over five hundred men and women engaged in the conduct of hospitals and dispensaries. The China Medical Mission Association meets triennially for the exchange of opinions and to make announcements of the results of research, and a bimonthly medical journal has been published for many years for the exchange of ideas in this field. A research committee has been formed and a large amount of valuable work has been done in the investigation of nematodes, trematodes, cestodes and the bacterial affections common to that part of the world, plague, cholera, typhus and other affections. Wellman says that more physicians and nurses are needed, and that to young men with the missionary spirit no more attractive field of endeavor could be found than that of China, Africa or India.

THE WISCONSIN MARRIAGE LAW DECLARED UNCONSTITUTIONAL

The apparent deadlock in Wisconsin over the amendment to the marriage law requiring a physician's certificate as a condition for a marriage license has been broken, for the present, at least, by the decision of the Milwaukee County Circuit Court that the law is unconstitutional and void. The matter was brought before the circuit court on an application for a writ of mandamus, directed against the county clerk, ordering him to issue a marriage license to an applicant without a health certificate. The court held that the amount of fee provided for the examinations as required by law was unreasonably low, and that the law was an undue interference with personal liberty. This decision, while only that of a circuit court, will act as a stay to the enforcement of the law until the higher courts have passed on the question. Probably no other topic has inspired so large an amount of newspaper comment in the past month. Wisconsin's experience should be a warning to state legislatures not

1. Wellman, Creighton: Am. Jour. Trop. Dis. and Prev. Med., December, 1913.

to enact hasty and ill-considered laws on complex scientific subjects. The discussion of eugenics, race betterment and marriage regulation is productive of a large amount of good, but premature efforts to crystallize hastily formed opinions into laws can result only in confusion.

Medical News

GEORGIA

Georgia Surgeons to Visit Louisiana.—The members of the Georgia Surgeons' Club will be guests of the New Orleans profession, February 27 and 28; elaborate plans for entertainment have been made, and a number of interesting clinics have been arranged for the visiting surgeons.

New Officers.—Georgia Medical Society of Chatham County at Savannah, January 13: president, Dr. Justin L. Jackson; vice-president, Dr. Eugene R. Corson; secretary-treasurer, Dr. Victor H. Bassett, all of Savannah.——Georgia Surgeons' Club at Atlanta: president, Dr. Edward C. Davis, Atlanta; secretary-treasurer, Dr. H. Clay Willis, Rome.——Thomas County Medical Association at Thomasville, December 18: president, Dr. James N. Isler, Meigs; secretary-treasurer, Dr. Arthur D. Little, Thomasville.——Macon Medical Society, December 3: president, Dr. Thomas H. Hall; secretary-treasurer, Dr. R. H. Stovall.——Eleventh District Medical Society at Valdosta: president, Dr. Charles W. Roberts, Douglas; secretary, Dr. J. W. Simmons, Jr., Brunswick. St. Simon's Island was selected as the next place of meeting for the society.

ILLINOIS

New Officers.—St. Clair County Medical Society at East St. Louis, January 8: president, Dr. August F. Bechtold, New Athens; secretary, Dr. Buenaventura H. Portuondo, Belleville.

Chicago

Personal.—Dr. Charles J. Rowan has been appointed head of the department of surgery at the State University of Iowa, Iowa City, to succeed Dr. William Jepson, Sioux City, resigned. ——Lieut. Col. Jacob Frank and Majors Buell S. Rogers and Charles B. Walls, M. C., Ill. N. G., were appointed members of the Board of Examiners of Medical Officers.——Dr. Antonio Lagorio was guest of honor at a dinner given by the Italian Chamber of Commerce at Chicago, January 17.

INDIANA

Sanitarium Closed.—The Gilbert Memorial Sanitarium, Evansville, which was built about two years ago at a cost of $100,000 has been closed. About February 1 it will be converted into an apartment building.

Gift to University.—The State University has been given a tract of 160 acres in Texas by George T. Kerr, Indianapolis; the proceeds of the sale of this land will be used to furnish a ward in the new Robert W. Long Memorial Hospital. (Fox)

New Officers.—Hancock County at Greenfield, January 10: president, Dr. Paul E. Trees, Maxwell; secretary-treasurer, Dr. Joseph L. Allen, Greenfield.——Wayne County at Richmond, January 7: president, Dr. Charles E. McKee, Dublin; secretary, Dr. Arthur J. Whallon, Richmond.

Hospital Notes.—The first two units of the Indianapolis City Hospital will be ready for occupancy by February. They will have cost $300,000 and will accommodate 450 patients. ——The Robert W. Long Memorial Hospital, which will be completed February 1, will be used to accommodate free patients from all parts of the state. (Fox)

State Medical Board Reorganizes.—The State Board of Medical Registration and Examination met in Indianapolis, January 13, for reorganization; Dr. James M. Dinnen, Fort Wayne, was elected president; Dr. W. A. Spurgeon, Muncie, vice-president; Dr. William T. Gott, Crawfordsville, was reelected secretary, and Dr. Moses S. Canfield, Frankfort, reelected treasurer.

Personal.—Dr. Homer J. Hall, Franklin, was operated on January 9, at the Methodist Hospital, Indianapolis, for gallstones.——Dr. Albert G. Coyner has been reappointed secretary of the board of health of Kendallville, where he has had twenty-three years of continuous service.——Dr. Edgar C. Loehr has entered on his second term as mayor of Noblesville.——Dr. Nettie B. Powell has been elected health officer of Marion.——Dr. Augustus L. Marshall has been appointed superintendent of the Indianapolis Municipal Dispensary, vice Dr. David W. Fosler, resigned.——Dr. William W. Vinnedge, Lafayette, was seriously injured recently in a collision between his buggy and a motor car.——Dr. John E. Hoover, Indianapolis, who was operated on recently for mastoiditis, is making good progress toward recovery.——Dr. Frank C. Robinson, Martinsville, is spending the winter in California and Florida.

IOWA

Site for Epileptic Colony Purchased.—The State Board of Control has purchased for $200,000 the Flynn farm as a site for the State Epileptic Colony. It is three miles west of the city limits of Des Moines, and contains 1,080 acres, and buildings valued at $60,000.

Hospital Board Officers Elected.—At the annual meeting of the medical board of the Jenny Edmundson Memorial Hospital at Council Bluffs, January 5, the following officers were elected: president, Dr. Alfred P. Hanchett; secretary, Dr. Mary L. Tinley; members of the executive committee: Drs. Donald Macrae, Louis L. Henninger and Earl Bellinger.

Personal.—Dr. Robert I. Rizer and family, Clinton, sailed for Europe January 8.——Dr. George Hofstetter, Clinton, who was operated on recently in Rochester, Minn., is reported to be making favorable progress toward recovery.——Dr. H. H. McCrea, Boone, has been unanimously elected president of the Boone Country Club.——Dr. Paul R. Burroughs, Allison, fractured his arm at the wrist, December 27, while cranking his motor car.

New Officers.—Ringgold County Medical Society at Mount Ayr, January 8: president, Dr. James H. Goad, Ellston; secretary, Dr. Samuel Bailey, Mount Ayr, both reelected.—— Montgomery County Medical Society at Red Oak, December 31: president, Dr. Louis A. Thomas; secretary-treasurer, Dr. Velura E. Powell, both of Red Oak.——O'Brien County Medical Society at Sheldon, December 29: president, Dr. William C. Hand; secretary, Dr. J. B. Sherbon, both of Hartley, both reelected.——Henry County Medical Society: president, Dr. D. S. McConnaughey, Wayland.——Muscatine County Medical Society at Muscatine, December 30: president, Dr. Edward K. Tyler; secretary-treasurer, Dr. William H. Johnson, both of Muscatine and both reelected.——Lee County Medical Society at Fort Madison, December 30: president, Dr. John R. Walker, Fort Madison; secretary-treasurer, Dr. Ernest G. Wollenweber, Keokuk (reelected).

KANSAS

New Officers.—Douglas County Medical Society at Lawrence, January 13: president, Dr. Harry L. Chambers; secretary, Dr. E. James Blair, both of Lawrence.——Franklin County Medical Society at Ottawa, December 30: president, Dr. Willis L. Jacobus; secretary-treasurer, Dr. James P. Blunk, both of Ottawa.——Reno County Medical Society at Hutchinson, January 2: president, Dr. Charles L. McKittrick; secretary-treasurer, Dr. William F. Schoor, both of Hutchinson.—— Sedgwick County Medical Society at Wichita, December 16: president, Dr. Lloyd P. Warren; secretary-treasurer, Dr. Frank S. Whitman, both of Wichita.——Cowley County Medical Society at Arkansas City, December 11: president, Dr. Walter P. Guy, Winfield; secretary, Dr. B. C. Geeslin, Arkansas City.

Personal.—Dr. John C. Cornell has resigned as city physician of Parsons.——Dr. Charles F. Menninger, Topeka, who was operated on at Christ Hospital, January 9, for removal of gall-stones, is reported to be improving.——Dr. Charles H. Fortner, Coffeyville, while making a professional call, was attacked by an unknown assailant and seriously injured.—— Dr. Philip B. Matz, assistant surgeon at the Soldiers' Home at Leavenworth for several years, has resigned and will be pathologist for St. John's and in the Cushing Hospital in that city.——Dr. Benjamin F. Hawk, Harper, has been appointed superintendent of the Larned State Hospital for the Insane, which will be ready to receive patients by February 1.—— Drs. James W. May, Kansas City, and Roy B. Guild, Topeka, have been appointed members of the Cosmopolitan Health Commissioners, whose duty is to recommend to the legislature a plan for the reorganization of the public health service in Kansas City.

KENTUCKY

Tuberculosis District Formed.—The counties of Christian, Fayette and Henderson voted, on December 16, to form themselves into tuberculosis districts that they may be provided with sanatoriums for tuberculosis.

Conflict Against Trachoma.—Drs. J. F. Oakley, F. Kalb and C. Moore, U. S. P. H. S., have combined in a crusade against trachoma in Jefferson County. All the schools in the county will be visited and the pupils examined; and all the schools, orphanages and other institutions in the county will be included in the investigation.

Personal.—Dr. Joseph W. Fowler has been reelected superintendent of the Louisville City Hospital.——Dr. Basil M. Taylor, Greensburg, who has been ill for several months, has gone to Florida for the remainder of the winter.——Dr. John Q. Taylor, Paducah, has been appointed chief surgeon of the Illinois Central Hospital, and Dr. Frank Boyd assistant surgeon.——Dr. Will C. Strouther, Bowling Green, is ill with septicemia following an accidental gun-shot wound in the hand.——Dr. Grover S. Brzozowski has succeeded Dr. Charles H. Whitlatch as health officer of Louisville.——Dr. Walter R. Francis, Bowling Green, suffered the fracture of several ribs in a runaway accident, December 19.——Dr. Richard B. Gilbert has been appointed a member of the board of trustees of the Louisville Tuberculosis Hospital.

NEW JERSEY

Tuberculosis Hospital to Open.—The Morris County Sanatorium, Morristown, will be formally opened February 1. The building will accommodate thirty patients.

Asks Home for Defectives.—Superintendent Kalleen, of the State Home for Boys, has asked an appropriation of $40,000 for a special home for defectives. In an examination of forty-eight boys taken from the inmates of the home, the report showed that eighteen were decided cases of feeblemindedness. Two had characteristics of insanity and thirteen were border-line cases.

New Officers.—Atlantic County Medical Society at Atlantic City, January 9: president, Dr. Walt P. Conaway; secretary, Dr. Edward Guion (reelected), both of Atlantic City.——Newark Medical Library Association, December 30: president, Dr. Edward J. Ill; secretary-treasurer, Dr. Frank W. Pinneo.——Mercer County Medical Society at Trenton: president, Dr. Frank G. Scammell; secretary, Dr. Horace D. Bellis, both of Trenton.

Personal.—Dr. Harry F. Bushey, Camden, has been sworn in as one of the coroners of Camden County.——Dr. Herman C. H. Herold has been reelected president of the Newark Board of Health, for the nineteenth term.——A dinner was given by the physicians of Elizabeth and vicinity to Dr. Victor Mravlag, mayor of Elizabeth, on the fortieth anniversary of his beginning work as a practitioner. A gold watch, engraved with his monogram, was presented to Dr. Mravlag.

NEW YORK

New Officers.—Cattaraugus County Medical Society at Salamanca, January 9: president, Dr. Herman W. Johnson, Gowanda; secretary-treasurer, Dr. Herman H. Ashley, Machias.——Yates County Medical Society at Penn Yan, January 6: president, Dr. John A. Conley, Penn Yan; secretary, Dr. George E. Welker, Dresden.

New Tuberculosis Sanatoriums.—The Board of Supervisors of Westchester County has voted to purchase 225 acres of land at North Castle for $33,500 as a site for a county tuberculosis hospital. The new buildings as planned will cost $200,000. This makes twenty counties in this state which have erected or planned to erect similar hospitals.——Work on the Onondaga County Tuberculosis Sanatorium on the Hopper's Glen site has begun. The plans provide for an administration building, to which, eventually, two wings will be added. The ward building is to be used for advanced cases of tuberculosis, while the administration building will be used for incipient cases.

New York City

Trichinosis a Reportable Disease.—At the meeting of the Board of Health Dec. 9, 1913, a resolution was adopted requiring all physicians to report cases of human trichinosis to the Department of Health.

Popular Health Lectures.—A series of lectures is to be given by the Medical Society of the County of New York Public Health Education Committee at the New York Academy of Medicine on alternate Tuesday evenings and Thursday afternoons from January 8 to March 5. This course of lectures is given in cooperation with the Public Health Education Committee of the American Medical Association.

New Officers.—Italian Medical Society, December 26: president, Dr. Felippo Cassola; secretary, Dr. John Corcia; corresponding secretary, Dr. Francis A. Auleta. It was decided to hold monthly meetings of the society to encourage Italian medical men of talent and ability to raise their professional standards, and to discuss ways and means of handling the problems which confront Italian physicians, such as the questions of midwives and lodge practice.

Personal.—Dr. Herman M. Biggs has been appointed State Commissioner of Health, and his name sent to the Senate for approval and confirmation.——Dr. William H. Knipe has been appointed visiting physician to the Gouveneur Hospital, Dr. George L. Brodhead visiting obstetrician to the Harlem Hospital, and Drs. Thomas H. Cherry and Arthur Stein have been made assistant visiting obstetricians to the Harlem Hospital.——Dr. Sigismund S. Goldwater, superintendent of Mount Sinai Hospital, on January 20, was appointed health commissioner by Mayor Mitchell.

New Cancer Laboratory Ready.—The Cancer Research Laboratory, which was the gift of the late George Crocker to Columbia University, is complete, and Dr. Francis C. Wood and his assistants are moving into the building. While the structure is meant only as a temporary housing for the laboratory, no pains have been spared in making it meet every present need. The laboratory is on the site purchased several years ago for the College of Physicians and Surgeons, but which has not been used for that purpose since the affiliation between Columbia and the Presbyterian Hospital.

Report of New York Academy of Medicine.—The annual report of the trustees of the New York Academy of Medicine shows that during the past year the trust funds have been increased by a bequest of $1,000 from the estate of the late Dr. James P. Tuttle which is to be used for the purchase of books relating to the gastro-intestinal tract. The principal of the library fund has been increased by $226 from the sale of triplicates, the endowment fund by $1,425 from admission fees, and the general permanent fund by $150. The academy extension fund has now reached the sum of $81,469. The total amount pledged to date is $125,225.

For Welfare of City Employees.—A plan is under consideration for the organization of welfare work among the employees of the Department of Health. The plan embraces the investigation of all absences over forty-eight hours, the keeping of records of the physical condition of all employees, the provision and supervision of a suitable retiring room for women and of a suitable lunch room, the establishment of an open-air garden for the use of employees during lunch hours, the organization of a vacation camp for women, and the delivery of lectures on personal hygiene. A committee has been appointed to perfect and carry out the plans.

Reform Suggested in City Hospitals.—At the meeting of the board of estimate on January 16 the report of two years' investigations of the city hospitals was submitted. This was only one of a series of reports on this subject and contained criticism of the manner of handling children in these institutions. It is claimed that there are many defects in the present system which expose the children to infection. The committee condemned the Randall's Island site of the old Children's Hospital as inaccessible and recommends a point just south of the City Home as the proper site for the new long-term children's hospital. This proposed institution should be planned to accommodate 1,000 children ultimately. Here the committee proposes to centralize the children's cases now distributed through the hospital system.

Distributing Hospital Funds on New Basis.—The Hospital Saturday and Sunday Association which has hitherto distributed cash among those hospitals which announced that they would receive charity cases, will hereafter take into consideration the cost of all free treatments and will allow up to $3 a day for surgical cases, but only 75 cents a day for convalescents and incurables. The association will strike from the roll of beneficiaries all hospitals marked "Grade C" on the records of the State Board of Charities. Such institutions will receive this year only 50 per cent. of their former allowance, and next year will be dropped altogther. It has also been decided that no hospital shall be admitted to membership unless it has a minimum of thirty-five beds and has given at least 5,000 days of free service a year for three years preceding the date of its admission.

NORTH CAROLINA

State Hospital Addition Nearly Ready.—Work on the addition to the Morganton State Hospital for the Insane is being rapidly pushed, and the building will be ready to receive patients by early summer.

New Hospital.—The Corcoran Hotel building, Durham, has been remodeled and will open in a short time as the Mercy Hospital, under the charge of Dr. Claude A. Adams and a select staff of physicians of Durham.

Personal.—Dr. Paul O. Schallert, Winston-Salem, was seriously injured in an automobile accident recently.——Dr. Harry Q. Alexander, Matthews, has been reelected president, and Dr. James M. Templeton, Cary, vice-president, of the North Carolina Farmers' Union.

New Vital Statistics Law.—The North Carolina Board of Health has secured the services of Dr. James R. Gordon, Jamestown, state senator from Guilford County, to visit all sections of the state, all medical societies, and all others concerned with the new vital statistics law, advising and instructing them as to its provisions, and to urge their hearty cooperation in securing effective registration.

New Officers.—Iredell-Alexander Counties Medical Society at Statesville, January 5: president, Dr. F. A. Carpenter, Mooresville; secretary, Dr. John E. McLaughlin, Statesville.——Wake County Medical Society at Raleigh: president, Dr. Jessie A. Strickland, Zebulon; secretary, Dr. William C. Horton, Raleigh. ——Wilson County Medical Society at Wilson: president, Dr. Albert F. Williams; secretary-treasurer, Dr. Michael M. Saliba, both of Wilson.

OHIO

Dayton Physicians to Replace Flood-Damaged Books.—The Montgomery County Medical Society at its regular meeting at Dayton, January 2, voted that its annual appropriation for reference books for its library should be used this year to replace books lost in, or damaged by the floods of last spring.

Personal.—Dr. T. Addison McCann, Dayton, was reelected president, and Dr. Lee Humphrey, Malta, vice-president, of the State Medical Board at its annual meeting in Columbus. ——Dr. William A. Dickey, Toledo, has been appointed surgeon of the police and fire departments.——Dr. H. L. Rockwood, Cleveland, has been appointed resident physician of the Warrensville Tuberculosis Sanatorium.——Dr. George P. Ikirt, East Liverpool, who has been seriously ill with pneumonia, is reported to be convalescent.——Dr. R. M. Manley, Cleveland, has returned from abroad.

New Officers.—Portage County Medical Society at Ravenna, January 8: president, Dr. Louis W. Prichard; secretary, Dr. Cyrus O. Jaster, both of Ravenna.——Clark County Medical Society at Springfield, January 12: president, Dr. James E. Studebaker.——Dayton Academy of Medicine, January 9: president, Dr. William H. Delscamp; secretary, Dr. Leo R. Courtright.——Coshocton County Medical Society at Coshocton, January 8: president, Dr. Thomas W. Lear; secretary, Dr. Jacob D. Lower, both of Coshocton.——Washington County Medical Society at Marietta, January 6: president, Dr. Stanford E. Edwards; secretary, Dr. Stephen A. Cunningham, both of Marietta.——Summit County Medical Society at Akron, seventy-third annual meeting January 6: president, Dr. David H. Morgan; secretary, Dr. Alexander S. McCormick (reelected), both of Akron.——Delaware County Medical Society at Delaware, January 2: president, Dr. Arthur H. Buck; secretary-treasurer, Dr. Wendell G. Hyatt, both of Delaware.

Cincinnati

New Officers.—Cincinnati Academy of Medicine, January 5: president, Dr. Allen B. Thrasher; secretary, Dr. Charles T. Souther.

Leipzig Professor At University.—Dr. Wolfgang Ostwald of the University of Leipzig is giving a series of lectures on colloid chemistry. The course is being given under the auspices of the Cincinnati section of the American Chemical Society and the Cincinnati Medical Research Society.

Association for the Welfare of the Blind.—The Cincinnati Association for the Welfare of the Blind has submitted its annual report for 1913. Much credit is due to Dr. Louis Stricker for his untiring energy and interest in the work of prevention among new-born infants. So far as is known, there has been absolutely no blindness during the past year resulting from ophthalmia neonatorum, due largely to the promptness with which cases have been reported for treatment. The work done in the workshop amounted to $14,598. Quite a number of blind men have been given employment in the shop, each receiving a wage of $6 per week.

OKLAHOMA

Hospital Notes.—The board of trustees of the Insane Hospital, Supply, has decided to erect a modern and fireproof hospital, which is to replace the building destroyed by fire in December last.——The Blackwell Hospital, Blackwell, was formally opened January 8.

Personal.—Dr. Walter Rendtorff, Anadarko, who has had charge of the Kiowa Agency school, has been promoted to a similar position in the Indian School, Carlisle, Pa.——Dr. Ernest L. Bagby, Fairfax, has assumed charge of the East Oklahoma Insane Hospital, Vinita.——Dr. Walter B. Reeves, Waupanucka, who was recently sued for malpractice, was completely vindicated, the court dismissing the case without submitting it to the jury.——Dr. Curtis R. Day, Oklahoma City, has been appointed dean of the medical school, vice Dr. William J. Jolly. (Watson)

New Officers.—Oklahoma County Medical Society at Oklahoma City, January 11: president, Dr. Millington Smith; secretary-treasurer, Dr. Frank B. Sorgatz, both of Oklahoma City. ——Alfalfa County Medical Society at Cherokee, January 8: president, Dr. H. A. Lile, Aline; secretary-treasurer, Dr. Lloyd T. Lancaster, Cherokee.——Blaine County Medical Society at Watonga, January 8: president, Dr. James S. Barnett, Hitchcock; secretary-treasurer, C. Williams, Watonga.——Caddo County Medical Society at Anadarko, January 1: president, Dr. Benjamin D. Brown; secretary-treasurer, Dr. Chas. R. Hume, Anadarko.——Washita County Medical Society: president, Dr. Julius Farber, Cordell; secretary-treasurer, Dr. William Leverton, Cloud Chief.——Lincoln County Medical Society: president, Dr. Chas. M. Morgan, Chandler; secretary-treasurer, Dr. Frank B. Erwin, Wellston.

PENNSYLVANIA

New Officers.—Butler County Medical Society at Butler, January 14: president, Dr. Guy A. Brandberg; secretary, Dr. William Blaine Clark, both of Butler.——Allegheny County Medical Society at Pittsburgh, January 13: president, Dr. John A. Hawkins; corresponding-secretary, Dr. Carey J. Vaux, both of Pittsburgh.——Elk County Medical Society: president, Dr. Stanley Barrett; secretary, Dr. Samuel G. Logan, Ridgeway.——Lancaster County Medical Society at Marietta, January 8: president, Dr. A. Z. Walters, Brownstown; secretary, Dr. Horace C. Kinzer, Lancaster.——Lycoming County Medical Society at Williamsport, January 9: president, Dr. Clarence E. Shaw; secretary, Dr. Robert F. Trainer, both of Williamsport.——York County Medical Society at York, January 8: president, J. N. Dinnick; secretary-reporter, Dr. Julius H. Comroe, York.——Northumberland County Medical Society at Sunbury, January 7: president, Dr. Charles A. Allison, Elysburg; secretary, Dr. Horatio W. Gass, Sunbury.——Fayette County Medical Society at Uniontown, January 6: president, Dr. Wilbur M. Lilley, Brownsville; secretary-treasurer, Dr. Joseph P. Ritenour, Uniontown.——Dauphin County Medical Society at Harrisburg, January 6: president, Dr. John F. Culp; secretary-treasurer, Dr. Frank D. Kilgore.——Ellwood City Medical Society, January 5: president, Dr. Charles Iseman; secretary, Dr. Boyd W. Shaffner.

Philadelphia

Mrs. Mitchell Dies.—Mrs. S. Weir Mitchell died from pneumonia, January 15, eleven days after the death of her husband.

Personals.—Dr. Francis Taylor, Police Surgeon, had his right fore-arm broken while cranking his automobile.——Dr. George Weinstein met with a similar accident during the past week. ——Dr. M. Frazer Percival was elected roentgenologist to the Polyclinic Hospital to fill the vacancy caused by the death of Dr. Charles Lester Leonard.

Gift to Germantown Hospital.—At a meeting of the Board of Managers of the Germantown Hospital and Dispensary, it was announced that a nurses' home fully equipped would be given to the hospital by Mrs. William G. Warden, in memory of her husband. The cost of the building and equipment will be $60,000. This gift makes it possible for the hospital to accept the offer of Miss Gertrude Homer to build a maternity ward in memory of her father, Thomas B. Homer.

To Improve Blockley.—For the improvement and enlargement of the facilities of the Philadelphia General Hospital, the committee on the reorganization of that institution urged the appropriation by councils of $50,000 for the immediate employment of a competent hospital architect to prepare plans for the reconstruction work. The committee consists of Drs. Charles K. Mills, C. H. Frazier, M. B. Hartzell, H. B. Allyn, W. M. L. Coplin, E. H. Siter, Henry Sykes, Joseph Sailer, D. H. Weisenburg, H. C. Carpenter, J. B. Carnett and David Riesman.

Hamilton Mabie on Tokyo Hospital.—A mass meeting was held at Holy Trinity Church, Walnut and Nineteenth Streets,

January 19, in the interest of St. Luke's Hospital, Tokyo, when Rt. Rev. A. L. Lloyd, D.D., and Mr. Hamilton Mabie spoke. They have recently returned from Japan, and have much to tell of medical and surgical work accomplished by Dr. Tuesler and Dr. Bliss who are in charge. The Japanese government recognizes the ability of these physicians, and has promised aid in building a new and much-needed hospital in Tokyo to be under their direction.

Annual Elections.—Philadelphia Clincal Association: president, Dr. Samuel M. Wilson; secretary, Howard D. Geisler.——Northwest (Germantown) Branch of the Philadelphia County Medical Society: chairman, Dr. H. B. Wilmer; clerk, Dr. C. C. Watt, Jr.——South Branch of the Philadelphia County Medical Society: president, Dr. Paul B. Cassidy; secretary, Dr. Joseph M. Endres.——Pathological Society of Philadelphia: president, Dr. D. J. McCarthy; secretary-treasurer, Dr. W. H. P. Pepper.——Samaritan Hospital Medical Society has chosen these: president, Dr. Edward K. Mitchell; secretary-treasurer, Dr. Charles T. Russell, Jr.——Medical Club of Philadelphia, January 16: president, Dr. Samuel D. Risley; secretary, Dr. William S. Wray. Resolutions were adopted deploring the great loss to the Medical Club in the death of Dr. S. Weir Mitchell.

WASHINGTON

New Officers.—Spokane County Medical Society at Spokane, January 8: president, Dr. John H. O'Shea; corresponding-secretary, Dr. Clarence A. Veasey, both of Spokane.——Pierce County Medical Association at Tacoma, January 6: president, Dr. William N. Kellar; secretary, Dr. Edward O. Sutton, both of Tacoma.

WISCONSIN

State Board Elects.—The State Board of Health, at its meeting held January 9, elected Dr. William F. Whyte, Watertown, president, and Dr. Edward S. Hayes, Eau Claire, vice-president; Dr. Cornelius A. Harper, Madison, is continued as secretary.

New Officers.—Milwaukee Medical Society, January 13: president, Dr. Robert C. Brown; secretary, Dr. Oscar Lotz.——Manitowoc County Medical Society at Manitowoc, January 7: president, Dr. William G. Kemper; secretary-treasurer, Dr. William E. Donahue, both of Manitowoc.

Personal.—Dr. John M. Beffel, Milwaukee, has been reappointed a member of the State Board of Medical Examiners.——Dr. Fay T. Clark, Waupun, has been appointed a member of the State Board of Medical Examiners to succeed Dr. Milton Rice, resigned.——Dr. Alexander Montgomery, Eau Claire, was severely burned while attempting to put out a fire in his house, January 7.

Amount Paid Out Under the Compensation Law.—In the two years during which the workmen's compensation law has been in operation the employers of labor have paid as indemnity to injured persons and their dependents in case of death, the sum of $396,354. This amount does not include the amount paid under the medical relief provision of the law, which it is estimated will equal 50 per cent. of the amount paid as indemnity.

GENERAL

Appropriation for Breakwater.—The Secretary of the Treasury has sent the House of Representatives, on January 15, a supplemental estimate of $40,000 for a breakwater for the United States Marine Hospital, Chicago.

Insurance Directors' Meeting.—The medical section of the American Life Company will hold its semi-annual session at French Lick Springs, Ind., March 4-6; Dr. J. Allison Hodges, Richmond, Va., is chairman of the program committee.

Gynecologists to Meet.—The American Gynecological Society announces its annual meeting, to be held at Boston, May 19 to 21. Prof. Dr. W. Nagle, Berlin, will deliver an address on "Operative Treatment of Prolapse of the Vagina, and Results."

Edward N. Bibbs Memorial Prize Fund.—The income of this fund, which amounts to about $500, is used in aiding investigators into the cause and treatment of diseases of the kidney. The recipient of the fund is chosen annually. The committee will select the worker for 1914 about the first of February. For information write to the Committee of the Edward N. Gibbs Memorial Prize Fund, 17 West Forty-Third Street, New York City.

Small-Pox in the Navy.—Thirty-four new cases of small-pox have developed at the Guantanamo naval station among sailors exposed on the *Ohio*. The station at Guantanamo has been quarantined, and the Atlantic fleet which was scheduled to start south, January 11, making its base at Guantanamo, will remain at Culebra, Porto Rico, until the end of January. The third death among the men exposed on the *Ohio* occurred at Charleston, S. C., January 7. Nine of the cases at Guantanamo are said to be severe.

Bequests and Donations.—The following bequests and donations have recently been announced:

Hebrew Orphan Asylum, United Hebrew Charities and Mt. Sinai Hospital, New York City, $2,500 each, by the will of William Scholle.

Presbyterian Hospital, New York City, residuary legatee of the estate of Miss Elizabeth Thompson, for $350,000.

Lenox (Mass.) Library, $2,500 by the will of Richard C. Greenleaf.

New England Hospital for Women and Children, Boston; Women's Medical College of Pennsylvania, Philadelphia; Corning (New York) Hospital, each $1,000 by the will of Alfred Jones, Boston.

Chicago Home for the Friendless; Lying-In Hospital; Presbyterian Hospital; St. Luke's Hospital, and Passavant Hospital, equal shares of the residuary estate of Thomas S. Kirkwood which amounts to about $415,000.

Maimonides Kosher Hospital, Chicago, donation of $5,000 from Abraham Slimmer, Dubuque, Iowa.

National Jewish Hospital for Consumptives, Denver, a donation of $10,000 from David May, St. Louis.

Kenosha (Wisconsin) Hospital, 5 per cent. of the estate of Max Rosenbloom, about $1,250.

Orthopedic Hospital and Society for the Relief of the Ruptured and Crippled, New York City, each $7,500 by the will of Marion de Forest Clark.

Children's Aid Society, St. John's Guild, United Hebrew Charities, Hebrew Orphanage, New York City, each $7,304, by the will of Major Ovan Tailof.

St. Luke's Hospital, New York City, $7,500 by the will of Henry M. Sands.

FOREIGN

Other Deaths in the Profession Abroad.—Dr. J. De Boeck, professor of psychiatry and medical jurisprudence at the University of Brussels.——Dr. A. Cugini, professor of medical jurisprudence at the University of Parma.——Dr. Zambaco Pasha of Constantinople died recently at Cairo at an advanced age. He had just added to his numerous works on leprosy another entitled "La lèpre dans l'Egypte actuelle." He had also recently published a work on eunuchs in the past and present.

CANADA

New Officers.—A new Catholic medical society has been organized in Montreal, of which Dr. Israel J. Desroches has been elected president.

Grenfell Institute Debt Free.—The Seamen's Institute, St. John's, Newfoundland, founded by Dr. Wilfred T. Grenfell, the Labrador medical missionary, is free from debt, and began the New Year without incumbrance.

The New University.—Dr. F. F. Wesbrook, president of the new University of British Columbia, is in the East looking for material to organize his staff. In March it is expected that a start will be made on the new university buildings to be erected in Vancouver, toward which the government of British Columbia has granted 250 acres of land. By the autumn of 1915 Dr. Wesbrook hopes that the university will be able to commence operations. In his quest Dr. Wesbrook has visited practically all the great universities of the United States and Canada.

Personals.—Dr. Rosaire Paquin has been appointed medical officer of health for Quebec City, in place of Dr. Laurent Catellier who has resigned, but will remain as consulting physician to the city. Dr. Joseph C. Gosselin has been appointed assistant to Dr. Paquin.——Dr. Evelyn J. Evatt, Winnipeg, professor of anatomy in the Manitoba Medical College, has accepted the position of professor of anatomy in Dublin University, formerly held by Dr. Geddes, who has been appointed professor of anatomy in McGill University, Montreal.——Dr. Edward V. Hogan, Halifax, N. S., has been appointed professor of surgery in the Halifax Medical College, Dr. John Stewart giving some additional lectures.

Hospital News.—To prevent multiple and proxy voting the staff of the Western Hospital, Toronto, is asking the Ontario government for special legislation to place this hospital on the same level as other hospitals in Ontario. In the present hospital act there is a provision giving donors of large sums of money a number of votes as multiples of $100. The medical staff wants "one man, one vote."——A new isolation hospital has been opened at St. Thomas, Ont. It consists of three cottages, two of which are completed; a third is to be built for small-pox patients.——Notre Dame Hospital, Montreal, is to have a new four-story addition, to cost $12,000.——A new building is to be erected for the Tuberculosis Sanatorium at Tranquille, B. C.

LONDON LETTER

(From Our Regular Correspondent)

LONDON, Jan. 10, 1914.

The Royal Commission on Venereal Diseases

At the last meeting of the Royal Commission on Venereal Diseases, Mr. J. E. Lane, senior surgeon of St. Mary's Hospital and of the London Lock Hospital and a member of the commission, gave evidence. In his opinion venereal diseases are attended by just as great a mortality as tuberculosis or cancer. He thinks that these diseases are somewhat less prevalent than they were twenty or thirty years ago, but it is difficult to speak with certainty as the statistics of certified deaths from syphilis do not give any idea of the prevalence of the disease. Although large subscriptions are given to the cause of combating other diseases, nothing is done for venereal diseases. Mr. Lane laid stress on the necessity for improved and free hospital treatment. He considered that every patient suffering from venereal disease should be entitled to gratuitous treatment and bacteriologic tests. On the subject of notification he had changed his opinion. Formerly he was in favor of reporting all cases to the sanitary authority, but he has now modified his view because he was convinced that notification would deter sufferers from seeking proper advice and would lead to increased resort to quack treatment. With regard to the education of public opinion as to venereal diseases, he said that in the first place every infected person should be instructed. It should be made compulsory for physicians to supply every patient suffering from a venereal disease with printed instructions as to the nature of the disease and the measures to be adopted in order to avoid spreading the disease to the public. Copies of such instructions should be supplied gratuitously to physicians. In colleges and universities and in all institutions in which there are a large number of employees courses of lectures on the dangers of venereal diseases should be given. It is also of great importance that the standard of knowledge of these diseases in the medical profession should be raised. In the past the teaching in the medical schools has been very inadequate, but steps are now being taken which should lead to improvement.

Dr. T. H. C. Stevenson, superintendent of statistics to the registrar-general of England, also gave evidence. He admitted that the statistics tabulated of death from syphilis did not afford any measure of the absolute amount of venereal disease, but they threw light on its relative amount, whether the comparison be historical, geographical or social. Taking the first, the curve of mortality from syphilis showed a large and rapid rise between 1850 and 1868, followed by a period of fairly sustained elevation till about 1886. This was succeeded by ten years of rapid fall. After 1896 the fall continued, but was less rapid. Dr. Stevenson thought that the fall in the last thirty years represented a genuine decrease in the mortality from the disease. Contemporaneously there was a great fall in the prevalence of the disease in the army and navy. As to social prevalence, the disease was most frequent in the highest and in the lowest classes.

A Hospital for the Middle Class

In London the poor are well provided with hospitals at which they are treated gratuitously, and the rich can command, either in their own homes or in nursing-institutions, everything that is necessary; but for the middle class unwilling to resort to, and indeed regarded as unsuitable for, hospital treatment and yet unable to pay the cost of skilled nursing and attention at home or in a nursing-home, nothing has been done, with the exception of providing a few pay wards in some of the hospitals. The opening of the Empire Hospital in Westminster for the middle class marks a new departure. It is a large up-to-date nursing-home equipped with everything required for the treatment of patients. It is run on business lines, but it is not intended to make larger profits and will provide a reasonable return on the capital invested. The rates charged vary from $15 to $52, and the majority of rooms are from $30 to $40. These terms include board and nursing.

A Defense of the Tuberculous Cow

The question of the relative merits, or rather demerits, of fresh milk which may possibly contain tuberculous bacilli, and sterilized milk, is the subject of correspondence in the *Times*. Mr. Robert Mond, son of the late Dr. Ludwig Mond, the celebrated chemist, has made a series of investigations at his experimental farm and also at the Infants' Hospital, Vincent Square, from which he has come to the conclusion that tuberculosis is not conveyed by cow's milk to man, and further that sterilized or condensed milk is a danger to children fed on it, who are in consequence predisposed to tuberculosis.

Pathologic examinations showed that infection by tubercle bacilli rarely, if ever, occurred from the bowel—as would be the case were milk the agent of transmission. The seat of invasion was ordinarily in the air-passages. Children fed on the milk of cows which subsequently were found to be suffering from tuberculosis had not contracted the disease. On the other hand, at the Infants' Hospital a large number of those children who were fed exclusively from birth on sterilized or condensed milk, which of course could be guaranteed tubercle-free, developed tuberculosis of the bovine type. The term "bovine" must not be taken to imply that a particular form of infection had been passed on from cattle to human beings. It is quite as reasonable to suppose that human beings had infected cattle originally as that cattle had infected human beings. The children were always weak and ill-nourished. This suggested that the cause might be the food. As a control experiment, a number of kittens were fed exclusively on sterilized milk; they all died in a fortnight. Mr. Mond was so impressed by these facts that he drank the milk of tuberculous cows in large quantities and found that he thrived on it. He would not have dared to use that milk sterilized. They take, he added, healthy children into crèches and feed them on sterilized milk and make them ill. But for the unsterilized cream added to the milk the children would die. It is curious that the advocates of sterilization have overlooked butter, which is just as likely to be contaminated as milk. The fact is that butter saved the unfortunates condemned to live on boiled milk. Mr. Mond regards milk as a living fluid intended by Nature for immediate consumption. If boiled it is chemically changed and loses in nutritive value. The chief danger in regard to milk is contamination, and the object of reformers should be greater cleanliness in the dairies and improved means of storage.

Sir Almroth Wright, discussing Mr. Mond's views, states that the question is so important that it should be taken up by the state and investigated scientifically. He has demonstrated that when milk is boiled the lime and magnesium salts are precipitated and settle at the bottom of the vessel. If, however, a drop of acid be added the lime-salts are again dissolved. Thus in the case of milk sterilized by boiling the child is deprived of these important constituents. Milk is a complex fluid beautifully balanced as regards its various constituents and containing all the essentials of nutrition. The loss or decrease of a particular constituent must affect the value of the milk. Sir Almroth thinks that too much is being made at present of so-called exclusion of infection, and hygiene. Infection cannot be completely excluded. The well-fed, well-nourished child possesses powers of resisting disease which are its best protection.

PARIS LETTER

(From Our Regular Correspondent)

PARIS, Jan. 9, 1914.

Salvarsan Effects Counteracted by Epinephrin

At one of the last sessions of the Société française de dermatologie et syphiligraphie, Dr. Milian, physician of the hospitals of Paris, made an interesting report on this subject. The complications which follow injections of salvarsan are not due, according to Milian, to the toxicity of the drug, which possesses scarcely any organotropic power, but are mainly connected with the mechanical troubles due to its vasodilating power. Those who are intolerant of salvarsan are generally subjects with insufficient vascular tone. This being the case, Milian thought that such patients might benefit by the preventive use of epinephrin. Although in an old syphilitic who had been subject for two years to epilepsy, each of four intravenous injections of neosalvarsan (in dose of from 0.3 to 0.35 gm.) caused violent reactions, the fifth injection of 0.45 gm. of neosalvarsan accompanied by an intramuscular injection of 0.0015 gm. epinephrin caused no reaction. Violent reaction followed the sixth injection, used without epinephrin. An intramuscular injection of 0.0015 gm. epinephrin was given before the seventh dose of neosalvarsan, which, though higher (0.5 gm.) caused no reaction whatever. Similar observations have been made on other patients, especially a physician who scarcely tolerated 0.45 gm. of neosalvarsan and took 0.6 gm. very badly, but was not inconvenienced by doses of 0.9 gm. after injections of epinephrin.

Milian generally injects from 0.0015 to 0.0002 gm. of epinephrin, according to the intensity of the reactions previously observed. The injection, he says, should be intramuscular, not subcutaneous, to avoid too rapid elimination. Intra-

venous injections should be reserved for cases in which quick action is necessary, as when grave symptoms manifest themselves, such as those of serous apoplexy. These occur usually on the third or fourth day after an injection of salvarsan, so that it is advisable to prolong the effect of the epinephrin injected by administering the drug by mouth, six times daily, in 0.25 mg. doses.

Heavy Intravenous Injections of Glucose Solutions

On January 6, Dr. Enriquez, physician of the hospitals of Paris, reported to the Académie de médecine the good results which he obtained from the intravenous injection of 300 per cent. glucose solutions. These were made so slowly that the injection of from 250 to 300 c.c. of glucose solution lasted about an hour. One patient often received in two or three injections as much as a liter (about one quart) of glucose solution, which represents 300 gm. of sugar, an allowance equal, as is well known, to about 1,200 calories. The tolerance of the organism to these injections is perfect.

In a great number of various infectious conditions at the stage at which the myocardium no longer responds to the usual stimulants, the effects of these injections have been remarkable, in most cases producing an almost immediate diuresis and a rapid improvement of the general condition. The same beneficial action has been noticed in several cases of serious intoxication (carbon monoxid and chloroform). Enriquez has also used these injections successfully in cases of more or less marked inanition due to ulcerous or stenotic lesions of the alimentary canal or to acute appendicitis, etc.

Intravenous injections of glucose solution offer to the clinician a weapon of the first order in the numerous cases of mechanical oliguria symptomatic of hyposystolic or asystolic conditions. Used after a loss of blood, these injections cause an immediate diuresis, which will be abundant in proportion to the amount of functional integrity of the kidney, and make it possible to await the slower action of the cardiac remedies.

The Journal of Radiology and Electrology

An addition to the excellent *Archives d'électricite médicale*, which for many years has been edited by Dr. Bergonié, professor of electrotherapeutics at the Faculté de médecine de Bordeaux, there has just been founded a *Journal de radiologie et d'électrologie*. The first number has just appeared and contains an article by J. Belot on the roentgenography of the maxillaries and of the teeth, a study by Guilleminot and Zimmern on the nature of the Roentgen ray and a general review by Delherm and Laquerrière on electricity in the treatment of infantile paralysis.

Marriages

CHARLES LOCK KENNEDY, M.D., Laurel, Ohio, to Miss Carrie Schlottenbeck of New Richmond, Ohio, at Batavia, Ohio, December 31.

HILBERT FRANCIS DAY, M.D., to Miss Elizabeth Vernor Henry R[illegible]ards, both of Boston, at Middlebury, Conn., January 3.

ASST.-SURG. JOHN JOSEPH O'MALLEY, U. S. N., to Miss Mildred Fendall Jones of Washington, D. C., January 7.

W. H. ALONZO WARNER, M.D., East Orange, N. J., to Miss Natalie B. Feraud of Redlands, Cal., December 31.

WILLIAM GLENN MILLER, M.D., Morrisville, Mo., to Miss Edith Louise Dixon of Welsh, Okla., December 31.

ASA CHARLES MCCURDY, M.D., to Miss Frances W. Starkey, both of Battle Creek, Mich., January 12.

W. W. EVERETT, M.D., Highland, Ill., to Miss Laura Vulliet of St. Louis, at Hope, [illegible]rk., January 8.

PRESTON HUNT, M.D., Texarkana, Tex., to Miss Hattie Hutton of Ballinger, Tex., January 5.

ARTHUR D. SINCLAIR, M.D., to Miss Kathryn J. Blake, both of Toronto, Ont., December 15.

TIMOTHY J. DWYER, M.D., to Miss Susan M. Flanagan, both of Omaha, Neb., January 7.

HENRY MICHIE SCHNEIDER, M.D., to Miss Lena Meyer, both of Cincinnati, January 10.

LOUIS C. HERCHENROEDER, M.D., to Mrs. Minnie Moss, both of St. Louis, January 8.

ADOLPH B. OYEN, M.D., to Miss May Johnson, both of Chicago, January 15.

Deaths

Edward Charles Spitzka, M.D. New York University, New York City, 1873; a member of the Medical Society of the State of New York, and the New York Academy of Medicine; in 1890 president of the American Neurological Association, and in 1893 president of the New York Neurological Society; author of a well-known treatise on insanity; a specialist on internal diseases, particularly of the nervous system; consulting neurologist in the Sydenham Hospital, New York City; editor of the *American Journal of Neurology* from 1881 to 1884; died at his home in New York City, January 13, from cerebral hemorrhage, aged 61.

Henry Ader, M.D. Philadelphia School of Medicine and Surgery, 1869; Cincinnati College of Medicine and Surgery, 1876; a Fellow of the American Medical Association; died at his home at Somerset, Ind., January 3, aged 69. At a special meeting of the Wabash County Medical Association, resolutions of respect and regret were adopted.

James Dallas Croom, M.D. Medical College of the State of South Carolina, Charleston, 1876; a member of the Medical Society of the State of North Carolina; for 42 years a practitioner of Maxton; a Confederate veteran; a member of the local school board and director of the Bank of Maxton; died at his home, January 6, aged 69.

Carl Bernard Cranmer, M.D. Jefferson Medical College, 1898; a member of the Medical Society of the State of Pennsylvania; for several years physician for the Jefferson and Clearfield Coal and Iron Company at Iselin; died suddenly at the home of his parents at Monroetown, December 21, from nervous breakdown.

Edward William Malone, M.D. College of Physicians and Surgeons, Chicago, 1885; formerly a Fellow of the American Medical Association; a member of the State Medical Society of Wisconsin; at one time physician of Waukesha County; died at his home in Waukesha, January 9, from cerebral hemorrhage, aged 58.

William Bernhardt Fehring, M.D. Rush Medical College, 1903; assistant professor of obstetrics and gynecology in his Alma Mater; a member of the staff of the Presbyterian Hospital; a Fellow of the American Medical Association; died at his home in Chicago, January 10, from diabetes, aged 39.

Emma Florence Richardson, M.D. University of Iowa College of Homeopathic Medicine, Iowa City, 1893; president of the Cedar Rapids Society for the Prevention of Cruelty to Animals, and humane officer of Cedar Rapids; died at her home in that city, January 7, from cerebral hemorrhage, aged 57.

John R. Sinks, M.D. Barnes Medical College, St. Louis, 1907; of Spokane, Wash.; formerly a Fellow of the American Medical Association; a member of the Washington State Medical Association; died at the home of his parents in Spokane, January 5, from septic pneumonia, aged 30.

Edwin De Baun, M.D. New York Homeopathic Medical College, New York City, 1885; visiting physician to St. Mary's Hospital, Passaic, N. J.; died at his home in that city, January 7, from the effects of a gunshot wound, self-inflicted, it is believed, with suicidal intent, aged 59.

Richard Vaux L. Raub, M.D. Jefferson Medical College, 1896; a member of the Medical Society of the State of Pennsylvania; for several years a president of the borough council; and president and treasurer of the borough school board; died at his home in Quarryville, January 2, aged 41.

Thomas Renick Hayes, M.D. Chicago Medical College, 1864; a Fellow of the American Medical Association; for many years a highly esteemed practitioner of Bellefonte, Pa.; died at his cottage in Atlantic City, N. J., January 3, from fatty degeneration of the heart, aged 74.

Clinton Helm, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1852; medical director of volunteers during the Civil War, and a prisoner in Libby Prison; for many years a practitioner of Rockford, Ill.; died at his home in that city, January 14, aged 84.

Jefferson Davis Gober, M.D. Louisville Medical College, 1888; a member of the State Medical Association of Texas; for 20 years a practitioner of Beaumont, Tex.; died at his home in that city, January 2, from nephritis, aged 52.

Erastus Ranney Ellis, M.D. Cleveland University of Medicine and Surgery, 1857; at one time professor of surgery in the Detroit Homeopathic College; died at his home in Detroit, January 7, aged 81.

John Wylie Hagler, M.D. University of Alabama, Mobile, 1894; a member of the Medical Association of the State of Alabama; for several years a practitioner of Prattville; died in the Williamson-Faulk Infirmary, Tuscaloosa, January 3, from erysipelas, aged 44.

Mordecai Davis Elder, M.D. College of Physicians and Surgeons, Keokuk, Iowa, 1878; a Fellow of the American Medical Association; one of the oldest practitioners of Bourbon County, Kan.; died at his home in Mapleton, December 18, from angina pectoris, aged 65.

James L. Reilly, M.D. Chicago Medical College, 1889; a trustee of the Chicago Industrial School for Girls; formerly a member of the American Medical Association; died in Mercy Hospital, Chicago, January 15, from pneumonia, aged 53.

Alexander Coleman, M.D. King Eclectic Medical College, Des Moines, Iowa, 1884; formerly a member of the Nebraska state legislature; later a resident of Rocky Ford, Colo.; died at the home of his son in Selma, Cal., December 28, aged 62.

Thomas Edwards Converse, M.D. Hospital College of Medicine, Louisville, 1892; formerly a specialist on diseases of the eye, ear, nose and throat of Louisville; died at his home in Hanover, Va., January 4, from pneumonia, aged 44.

Wilhelm Thies, M.D. Jefferson Medical College, 1877; a member of the Illinois State Medical Society; for 27 years a practitioner of Chicago; died suddenly in Janesville, Wis., January 14, from heart disease, aged 61.

Benno Albrecht Hollenberg, M.D. Memphis Hospital Medical College, 1885; a Confederate veteran; for nearly fifty years a practitioner of New York City; died at his home, January 1, from heart disease, aged 73.

George William Peckham, M.D. University of Michigan, Ann Arbor, 1881; formerly superintendent of schools and public librarian of Milwaukee; died at his home in that city, January 10, aged 68.

William L. Broaddus, M.D. New York University, New York City, 1868; a member of the Medical Society of Virginia; a Confederate veteran; died at his home in Bowling Green, January 4, aged 67.

Frank Byron Brooks, M.D. University of Syracuse, N. Y., 1881; for nine years instructor and lecturer on physiology in his Alma Mater; died at his home in Syracuse, December 26, aged 58.

Abby Swan Morse, M.D. Boston University School of Medicine, 1875; of Gloucester, Mass.; died in the Addison Gilbert Hospital in that city, December 2, from appendicitis, aged 68.

Daniel Eastman Rogers, M.D. Harvard Medical School, 1901; of Center, N. D.; died in the Mandan (N. D.) Hospital, December 31, from appendicitis, three days after operation, aged 36.

Adolph E. Linder, M.D. American Medical College, Eclectic, St. Louis, 1897; died at his home in East St. Louis, December 27, from rheumatic endocarditis, aged 42.

John Fisher Keene, M.D. Western Reserve University, Cleveland, Ohio, 1893; died at his home in Gustavus, Ohio, December 24, from cerebral hemorrhage, aged 46.

Harvey Le Roy Smith, Ph.G., M.D. College of Physicians and Surgeons, Chicago, 1906; died suddenly at his home in Chicago, January 7, from heart disease, aged 41.

Charles Clay Miller, M.D. Rush Medical College, 1891; of Boulder Creek, Cal.; died at his home in that city, December 23, from general nervous breakdown

William Joseph Byrne, M.D. St. Louis College of Physicians and Surgeons, 1901; died at his home in Dubuque, Iowa, December 25, aged 33.

Joseph Francis De Silver, M.D. University of Pennsylvania, Philadelphia, 1900; died at his home in Atlantic City, N. J., January 1, aged 38.

Levi Shoemaker, M.D. Eclectic Medical Institute, Cincinnati, 1887; died at his home in Wyanet, Ill., December 18, aged 59.

George Kennon Taylor, M.D. Bellevue Hospital Medical College, 1886; died at his home in Cincinnati, December 26, aged 76.

W. S. Woolford, M.D. University of Arkansas, Little Rock, 1884; died at his home in Kingsland, Ark., December 24, aged 57.

Charles A. Pusheck, M.D. Hahnemann Medical College, Chicago, 1880; died at his home in that city, January 1, aged 54.

Charles Louis Goehring, M.D. Jefferson Medical College, 1871; died at his home in Pittsburgh, December 31, aged 70.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

EXPURGO (SANOL) ANTI-DIABETES

One More Fraudulent Nostrum for Diabetes

Expurgo Anti-Diabetes is sold and advertised in the United States by the Expurgo Manufacturing Company, Chicago. The concern is the United States branch of a Canadian company, the Sanol Manufacturing Company, Ltd., Winnipeg, which sells its product in Canada under the name of "Sanol Anti-Diabetes." The parent company is said to have been incorporated under Manitoba laws in 1912 and to have for its officers and directors the following men:

Charles Beyer, President
Frank Beyer, Vice-President
Charles Bauer, Secretary-Treasurer and Manager.

The manager of the United States branch in Chicago is said to be one E. M. von Amerongen.

The stuff is such an evident fraud that one would imagine that even intelligent laymen could not be deceived by it. Nevertheless medical journals both in the United States and Canada have accepted advertisements for this preparation and physicians—of a certain type—have been found to give testimonials for it. The medical profession is circularized widely by the concern and "write-ups" have appeared in pseudo-medical journals. Some of the claims made for Expurgo Anti-Diabetes are:

"The only positive cure for Diabetes."

"It never fails to effect a Cure in every case of this disease, in whatever form it may present itself provided the patient has not reached the last stages of the malady."

"Expurgo Anti-Diabetes is the New Cure for this deadly affliction."

"Diabetes is certainly curable by our new discovery—Expurgo Anti-Diabetes, provided that the course of the disease has not progressed to the extent that the vital organs are irreparably damaged."

". . . thanks to the discovery of Expurgo Anti-Diabetes, the cure of this dread disease is no longer a matter of doubt."

"With the exception of very advanced cases of Diabetes . . . all diabetes can be cured by Expurgo Anti-Diabetes."

Such claims one would imagine would be more than sufficient to make plain, even to the most uncritical of physicians, the evident fraudulence of Expurgo Anti-Diabetes. Nevertheless, the advertisements of this fraud have appeared during 1913, in the following medical journals:

Medical Times
Medical Brief
Medical Summary
Buffalo Medical Journal
Louisville Monthly Journal
Iowa Medical Journal
Canada Lancet
Detroit Medical Journal
Medical Herald
Medical Review of Reviews
Medical Standard
Medical Review
Therapeutic Record
Medical Fortnightly
Indianapolis Medical Journal
Southwest Journal of Medicine and Surgery
Western Canada Medical Journal
Dominion Medical Monthly
Canadian Medical Association Journal
Canadian Practitioner and Review
Massachusetts Medical Journal

Physicians will recognize that, with but few exceptions, most of these journals are utterly unrepresentative of scientific medicine.

The *Army and Navy Medical Record* shown in THE JOURNAL recently as a journalistic fraud, contained an editorial puff of Expurgo Anti-Diabetes. The fact that the Expurgo Company reprints the "editorial" from the *Army and Navy Medical Record* as a "voluntary and unsolicited reference" and distributes it among physicians, indicates how rotten are the props on which the superstructure of this fraud rests.

Another alleged "voluntary and unsolicited reference", used by the Expurgo Company, is taken from the *Therapeutic Record* of Louisville, Kentucky. The advertising pages of the *Therapeutic Record* reek with frauds and it has more than once given editorial endorsement to some of the frauds that

it advertises. The following enlightening letter is alleged to have been written by the editor of the *Therapeutic Record* to the Expurgo Company in February, 1913:

Gentlemen:—Your favor of February 14th came duly to hand. Let me advise you to pay no earthly attention to the proceedings of the Medical Society where your product was criticized. These people exert no influence with the practical up-to-date element of the profession and are doing you as they do others. *Never fear—you will succeed—your remedy is all right. No man can talk down a meritorious product. I stand ready to help you in any way at any time.*

With sincere regards, I am,

ROBERT C. KENNER, M.D.,
Editor, the *Therapeutic Record.*

This, it will be noticed, was written in February. Soon thereafter the *Therapeutic Record* was carrying the Expurgo advertisement, and the June, 1913, issue contained a puff on Expurgo, entitled "A Contribution to the Medical Treatment of Diabetes." The *quid pro quo* is fairly evident.

THE ALLEGED FORMULA

The formula for this nostrum is never published, although in some of the advertising matter it is claimed that it is "at the disposal of physicians." A physician wrote to the Expurgo Manufacturing Company, asking for the formula. He was told that the preparation was "exclusively derived from the vegetable kingdom," from which one may recognize a family likeness to the "dope" put out by the immortal Lydia Pinkham. Further, to copy the letter exactly:

"The ingredients of which Antidiabetes is composed are chiefly:
"fructus syzigii jambulani
"cortex syzigii jambulani
"flores Rosmarini
"fructus Anisi stellati
"Extr. fl. Colæ
"Extr. fl. Condurango
"Extr. fl. Chinæ spir. spiss.
"Extr. fl. Calami
"Extr. fl. Gentianæ."

The recipient of this noncommittal and uninforming "formula" again wrote the Expurgo Manufacturing Company, asking for quantities. Evidently this nostrum concern considered such a request a piece of impertinent inquisitiveness, for it replied to the physician in these terms, given *verbatim et literatim:*

"*Dear Sir:*—Yours of the 16th duly to hand. We note that you state '. . . I do not like to be working in the dark, and you can readily see that this is the case unless I know how much of each ingredient I am giving. . . .'

"In your letter of the 6th you asked for the composition, which you promptly received. We would like to state that we are dealing with about 600 Doctors. Some of them asked for the formula, which they received. These are all very conscientious gentlemen and none of them ever pretended 'to work in the dark.' You know furthermore that none of these ingredients is harmful in any way and yet 'work in the dark.' You know that if there were any harmful ingredients in our preparations, we would expose ourselves to imprisonment. If you are so anxious to know all about it, why do you not analyse our medicine? This would enlighten you in your 'perfect darkness.' If you want to deprive your patients and yourself of the indisputable good of our preparations, simply do not prescribe them. Why finally do you not write to the Doctors whose names we gave, who know enough to be able to enlighten those who need it.

Truly yours
THE EXPURGO MFG. CO.,
C. M. v. Amerongen, Manager.

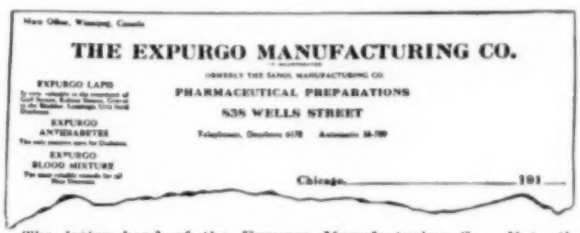
More than a year ago, a Wisconsin physician, himself a sufferer from diabetes, wrote THE JOURNAL that for three months he had been using Expurgo Anti-Diabetes which the Expurgo people had sent him. He declared that the nostrum had greatly reduced the percentage of sugar in his urine. In its reply, THE JOURNAL asked him whether, in testing his urine, he had used portions of twenty-four hour specimens or merely individual specimens. His attention was called to the fact that most of the nostrums for diabetes are diuretics which, by increasing the amount of urine passed, give an apparent decrease in the amount of sugar excreted. A few days later, the physician wrote again, stating that he had committed the very error THE JOURNAL had suspected, and reporting that an examination of a twenty-four-hour specimen showed that the glucose-excretion, instead of being diminished, actually increased. This matter was referred to editorially in THE JOURNAL, Nov. 9, 1912, under the title, "A Possible Fallacy in Testing Diabetic Urine."

Specimens of Expurgo Anti-Diabetes were examined in the Association's laboratory and the chemist's report follows:

LABORATORY REPORT

"The specimen of Expurgo Anti-Diabetes (Sanol's Anti-Diabetes) examined, was a light-brown, opaque liquid, having a faintly aromatic odor and bitter taste. The specimen contained considerable amounts of brown, insoluble residue resembling the deposits often found in fluid extracts. The absence of ammonium salts, iodids, glycerin, hexamethylenamin, of antipyrin, pyramidon and similar substances and of such purgatives as aloes, frangula, rhubarb, etc., was indicated. Potent alkaloids such as aconitin, cocain, morphin and strychnin were not found. Qualitative tests indicated the presence of traces of phosphates, sulphates, reducing sugars, caffein and cinchona alkaloids. Alcohol was present only in traces. Small quantities of chlorids, sodium and a salicylate were found. The residue on drying amounted to 2.9 gm. in each 100 c.c. A determination of the salicylic acid indicated approximately 0.17 gm. in each 100 c.c., which is equivalent to less than 0.2 gm., of sodium salicylate per 100 c.c. (about 1 grain to the ounce). Evidently the preparation contains plant extractives in aqueous solution and small amounts of sodium salicylate and sodium chlorid."

Summed up, the chemist's report shows that Expurgo Anti-Diabetes is essentially a watery solution of plant extractives with small quantities of sodium salicylate and salt. The exploiters claim their stuff contains the fruit and bark of jambul, rosemary, star anise and fluid extract of calamus,



The letter head of the Expurgo Manufacturing Co. Note the claim that Expurgo Anti-Diabetes is "the only positive cure for diabetes." And this stuff is foisted on the profession through the medical press!

cinchona, cola, condurango and gentian. Since fluidextracts in general are strongly alcoholic and since the laboratory's analysis shows that the preparation contains only traces of alcohol, the fluidextracts of the various drugs, if present at all, must be in an infinitesimal amount.

Jambul was in vogue as a remedy for diabetes about twenty years ago. It was tried and found wanting, and has long since been relegated to the therapeutic scrap heap. Sanol therefore, is but one more proprietary humbug, foisted on the profession under fraudulent claims, and having for its essential constituent a drug that has long been discarded by scientific men and resurrected for the purposes of quackery. Expurgo will probably be used by uncritical and unthinking physicians and its existence will be artificially prolonged through the venality of pseudo-medical journals. That the medical profession should tolerate such an evident fraud is not to its credit. There is no excuse, either moral or otherwise, for a physician giving his patients nostrums of whose composition he is ignorant, and that is what is done whenever Expurgo Anti-Diabetes is prescribed.

PRESCRIBING IN THE HOSPITAL

The following paragraphs are from a letter by the president of the visiting staff of a large hospital which is revising the entire question of drugs:

"We hope to eliminate many time-honored formulas, increase the simplicity of prescriptions, use only approved drugs, cultivate among the interns a rational drug therapy in line with the plans of the American Medical Association in that direction, etc.

"It has occurred to me that perhaps you could put us in touch with the hospitals that have already gone over this ground, or perhaps some individual physicians that you may know could help us in that direction."

We print the foregoing for two reasons: first, because we hope to learn of other hospitals which have taken this step, and second, because we trust it may arouse other institutions to make a revision of their methods.

The convenient but lazy and unscientific method of prescribing by number has a pernicious influence. Those who employ this method cannot adapt their prescribing to the individual patient. They prescribe a tonic mixture, giving perhaps three, four or more harmful or useless drugs for the sake of an effect that most probably could be obtained from one simple bitter. The morphin, or one of its derivatives, in the ordinary cough-mixture may be needed only for certain stages; only one or more of the other ingredients are wanted, but the "shotgun" mixture is given rather than write a special prescription. Students who have been trained to prescribe by such a method finally succumb to this habit, and when they enter practice are ready to accept the seductive mixtures of the nostrum-maker. Hence this practice is especially to be condemned when the hospital or dispensary is connected with a medical school. Its evil influence is then multiplied and intensified because it is exerted on the immature minds of students who are always ready to follow the example of their respected instructors. Teachers of pharmacology and clinicians may strive to counteract these influences by their teaching, but the better way is to do away with complicated, ready-to-order formularies altogether. A good rule for any institution to adopt in revising its formulas is embodied in the comment to Rule 10 of the Council on Pharmacy and Chemistry: "The combination of two or more remedies in a mixture must be considered contrary to scientific medicine unless a distinct reason exists for such combination."

Correspondence

The Histopathologic Loan Collection and Relieving the Curriculum

There appeared recently in THE JOURNAL (Jan. 10, 1914, p. 125) an article by Steensland and Weiskotten advocating the use of loan collections of slides in teaching pathologic histology, in preference to the method of *giving* to the class each year stained or unstained sections which become the permanent property of the students.

The question of histologic class material comes up now and then in every pathologic laboratory in which teaching is done. Since the choice of the plan of dealing with the problem is rather important, a discussion of the subject seems timely. Steensland and Weiskotten have presented clearly the advantages in the use of the loan collection in teaching, namely, that (1) there is a saving of time for both student and teacher (or technician); (2) the preparations are better stained and mounted, and therefore more satisfactory for demonstration and study, and (3) rare material that would be difficult to replace can be used year after year. They also point out that the practice which the students acquire in staining and mounting sections is not worth the time expended, and that students do not, as a rule, refer to their slides after the course is finished. The last statement may certainly be questioned; but one may grant practically all of the points which the authors make and yet not subscribe to their conclusion. There are at least two reasons, I think, why, in spite of recognized disadvantages, the plan of *giving*, and not lending, histologic preparations is to be preferred:

In the first place, the sense of ownership increases greatly the students' interest in the preparations, and thus indirectly in their work. I have been convinced of this from close observation, and from discussions of the question with third- and fourth-year students who, after having had experience with both methods, have been almost unanimous in opposition to the loan-collection plan. Since fifteen or twenty minutes should suffice for mounting four or five stained sections—the average number given out daily—it would seem that the better spirit and greater interest on the part of the students which the giving of the material undoubtedly induces is rather cheaply obtained.

In the second place, there is for the teacher a more serious objection to the loan-collection plan, namely, the natural encouragement that it gives to cut-and-dried teaching; the lecture is made to fit the slides. For example, if in the prepared collection there are several beautiful sets of slides of chronic nephritis, it is more than likely that these slides will be used year after year, for the effort at staining and mounting from forty to a hundred and fifty more slides from a single new kidney will discourage changes pretty effectively. When the sections are given to the students the same amount of preparation is required for old and for new specimens. The use of loan collections, then, almost invariably tends to make the course inelastic and non-progressive, a condition which, in this time of active investigation and progress in all fields of pathology, is certainly for the teacher and interested student most unfortunate.

ROBERT A. LAMBERT, M.D., New York.

A Probable Case of Anilin Poisoning

To the Editor:—Two painters working in the laboratories of the Harvard Medical School with an anilin black stain reported symptoms of poisoning at the end of the day. The formula for the stain which they were using was essentially that described in THE JOURNAL, Dec. 20, 1913, p. 2260. It will be remembered that when the solutions are applied and dried the surfaces are washed with hot soap-suds to bring out the black color. The surfaces on which the men were working were about 128 square feet, and it took eight hours to wash them thoroughly. During this time their hands were continually exposed to a hot solution of soap and the chemicals.

From the symptoms, it is entirely probable that they absorbed enough anilin through the skin to cause the poisoning. The men had a sudden onset of very marked general weakness, nausea, marked pallor and cyanotic lips. This condition lasted until nearly midnight in both cases, accompanied by heart symptoms, palpitation mainly, which were severe enough to cause them considerable uneasiness. Apparently as the heart became more normal these symptoms wore off, although one of them reported a violent headache with vomiting which lasted until early the next morning, while the other had a marked diarrhea which persisted throughout the next day. Both reported that the urine the next morning was dark-colored, "like blood." Neither called in a physician and both were able to work the next day. Rubber gloves were furnished them during the washing process and no further trouble was experienced.

E. G. BIRGE, M.D., Boston.

A Blackmailing Scheme

To the Editor:—I received a letter almost identical with the one given in THE JOURNAL, Jan. 10, 1913, p. 153. I answered it stating that I knew of no one who would produce abortion, but that a little later the woman might find a place to stay at the Salvation Army Rescue Home while her child was born. A few days later a western-looking, heavy-set man, clean shaven, about 38 years old, weighing about 165 pounds, having had some old injury to his left hand, called and between sobs and the free use of a handkerchief told me that his niece had bled to death three days before from a criminal operation, and in her hand-bag was found my name and a receipt for some ribbons from a near-by store. He showed me the picture of a girl picking apple-blossoms and asked me if I had ever seen her. I told him no, gave him back her letter and told him what I had written her. He said he believed me, but intended to do everything in his power to find the guilty party. That was all I saw of him that day, but he called several times the next few days to "report progress" and said that they had a woman detective calling on the

doctors who stated to each doctor visited that the sister whom the doctor had operated on was not doing very well and wanted to know what was to be done. Each time this man called on me he tried to gain my sympathy by telling me he was so tired out that he was almost sick. The last time he called he seemed quite excited and said he had just received a telegram from home stating that his wife was dangerously ill and for him to return at once. He said he had not enough money for the trip and asked me to lend him the remainder. This I did, for which he gave me his note. This I have put away to remind me what an easy mark a doctor can be.

X. Y., St. Paul, Minn.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ACTION OF PIGMENT IN INDELIBLE PENCILS

To the Editor:—Particles from the common indelible pencil sometimes get into the eye, where they seem to excite a chemical action on the tissues. Children sometimes bite off and swallow the point. Please inform me with regard to the irritant and toxic action in these cases, and the proper method of dealing with them.

W. C. LIPSCOMB, M.D., Crockett, Tex.

ANSWER.—The substance used most commonly in indelible pencils is methyl violet. This is an antiseptic which is relatively non-toxic. Large doses, however, produce symptoms of poisoning. It is very doubtful if the amount of the point bitten off and swallowed by a child would produce any serious effects. If there is reason to think that the amount swallowed would do harm, an emetic followed by a purgative would be appropriate treatment. The available data are not sufficient to permit an estimate of the probable fatal dose. If a piece has got into the eye, it would seem to be sufficient to wash it out. The trace left would probably do no harm, as this substance has been used as an antiseptic for the eye.

PETROLEUM FOR CONSTIPATION

To the Editor:—1. What is the dose of petroleum used for constipation?

2. Must it be specially prepared?

O. O. KAFER, M.D., Edward, N. C.

ANSWER.—1. The dose is 30 c.c. or 1 ounce two or three times a day.

2. A purified petroleum answering to the official requirements for petrolatum liquidum should be employed. A crude article would be likely to produce too much irritation and might cause poisoning. The description of the official preparation, however, is somewhat loosely drawn, and will permit the use of a somewhat colored article, which may vary widely in specific gravity. A satisfactory product will probably be obtained if the prescription calls for Russian liquid petrolatum or Paraffinum liquidum, B. P.

REMOVAL OF TATTOO MARKS

To the Editor:—Please tell me what to do for tattoo marks. This mark is about 1 by 2 inches on the arm of a young woman.

E. S. SMITH, M.D., Macon, Mo.

ANSWER.—This question was answered fully in THE JOURNAL, Sept. 14, 1912, p. 895. The answer, in brief, is as follows:

The methods of Variot and of Brault have been recommended for the removal of such marks. The principle in each is to excite an inflammatory process by means of chemical irritants so as to cause destruction of the superficial layers of the skin.

Variot uses as an irritant silver tannate produced by tattooing in a strong solution of tannin and rubbing a silver nitrate pencil over the spot until it is blackened by the formation of silver tannate.

Brault removes the marks by tattooing the surface with a solution of 30 parts of zinc chlorid to 40 parts of water. A slight crust forms after these applications, the spontaneous removal of which after two weeks is followed by a pink cicatrix which gradually becomes of normal color.

ROCKY MOUNTAIN SPOTTED FEVER—TYPHOID FEVER—SCARLET FEVER

To the Editor:—Kindly refer me to late literature regarding Rocky Mountain tick fever and the prophylactic serums and vaccines of typhoid and scarlet fever.

ROBERT W. KING, M.D., Victor, Ida.

ANSWER.—Following is a list of references to recent articles on these subjects:

ROCKY MOUNTAIN SPOTTED FEVER

Eradicating Rocky Mountain Spotted Fever, editorial, THE JOURNAL, Sept. 13, 1913, p. 871.
Rucker, W. C.: Problem of Rocky Mountain Spotted Fever, *Mil. Surgeon*, December, 1911.
Wallbrach, C. E.: Rocky Mountain Spotted Fever, *Colorado Med.*, September, 1912.
Heinemann, P. G., and Moore, J. J.: Experimental Therapy of Rocky Mountain Spotted Fever, *Jour. Infect. Dis.*, May, 1912; abstr., THE JOURNAL, July 13, 1912, p. 143.
Fricks, L. D.: Rocky Mountain Spotted Fever, Reprint from *Pub. Health Rep.*, Aug. 8, 1913, No. 139, Superintendent of Documents, Washington, D. C., 5 cents.
McClintic, T. B.: Investigations of and Tick Eradication in Rocky Mountain Spotted Fever, Reprint from *Pub. Health Rep.*, No. 79, Superintendent of Documents, Washington, D. C., 5 cents.
Rucker, W. C.: Rocky Mountain Spotted Fever, Reprint from *Pub. Health Rep.*, No. 986, Superintendent of Documents, Washington, D. C., 5 cents.

PROPHYLACTIC VACCINATION IN TYPHOID

Russell, F. F.: Antityphoid Vaccination in Children, THE JOURNAL, Feb. 1, 1913, p. 344.
Russell, F. F.: Progress in Antityphoid Vaccination During 1912, THE JOURNAL, Aug. 30, 1913, p. 666.
Spooner, L. H.: Antityphoid Inoculation; Three Years' Experience with Its Use in Training-Schools for Nurses in Massachusetts, THE JOURNAL, Oct. 12, 1912, p. 1359.
Russell, F. F.: Some Results and Fields of Usefulness of Antityphoid Vaccination, THE JOURNAL, Oct. 12, 1912, p. 1362.
Hachtel, E. W., and Stoner, H. W.: Inoculation Against Typhoid, THE JOURNAL, Oct. 12, 1912, p. 1364.
Weston, P. G.: The Immunization Against Typhoid of 808 Patients in an Institution, THE JOURNAL, Oct. 26, 1912, p. 1536.
Phalen, J. M.: Vaccine Inoculation, Prophylactic and Curative, of Typhoid Fever, THE JOURNAL, Jan. 6, 1912, p. 9.
Agglutination Reaction Before and After Antityphoid Vaccination, THE JOURNAL, Feb. 10, 1912, p. 416.
Davis, D. J.: Antityphoid Vaccination, THE JOURNAL, Feb. 24, 1912 p. 537.
Russell, F. F.: Results of Antityphoid Vaccination in the Army in 1911 and Its Suitability for Use in Civil Communities, THE JOURNAL, May 4, 1912, p. 1331.
Maverick, A.: Typhoid Vaccination and the Widal Reaction, THE JOURNAL, June 29, 1912, p. 2034.

A list of articles on the serotherapy of typhoid is given in the second part of:

Oleozone—Serotherapy of Typhoid, Queries and Minor Notes, THE JOURNAL, Oct. 21, 1911, p. 1386.

SEROTHERAPY OF SCARLET FEVER

Shick, B.: Serotherapy of Scarlet Fever, *Therap. Monatsh.*, 1912, xxvi, No. 4.
Reiss, E., and Jungmann, P.: Serotherapy in Scarlet Fever, *Deutsch. Arch. f. klin. Med.*, 1912, cvi, Nos. 1 and 2.
Lewkowicz, X.: Serotherapy of Scarlet Fever, *Monatsh. f. Kinderh.*, 1912, x, No. 12.
Szekeres, O.: Serotherapy of Scarlet Fever, *Wien. klin. Wchnschr.*, June 13, 1912.
Reiss, E.: Serotherapy of Scarlet Fever, *Therap. Monatsh.*, 1913, xxvii, No. 6; abstr., THE JOURNAL, July 12, 1913, p. 157.

FORMALDEHYD FUMIGATION

To the Editor:—1. Which is the best method of formaldehyd fumigation: formaldehyd candles, formaldehyd candles with water, formalin solution 40 per cent. in generator or formalin solution 40 per cent. in generator with potassium permanganate? Candles are on the market that are said to be sufficient for 1,000 cubic feet. Are these efficient under ordinary conditions for use in fumigation of dwellings?

2. In conducting bacteriologic tests of formaldehyd fumigation which bacteria should be used as a standard: typhoid, diphtheria, streptococci, staphylococci, colon, or others?

A. H. CALHOUN, M.D., Canton, Ohio.

ANSWER.—1. The method to be recommended is the use of liquor formaldehydi, U. S. P., with potassium permanganate. Our correspondent appears to use the term "formalin" as equivalent to formaldehyd. Formalin in fact is a proprietary solution of formaldehyd containing about 40 per cent. of formaldehyd gas and hence equivalent to liquor formaldehydi, U. S. P.

2. Any one of the organisms mentioned could be used as a test of the efficiency of the disinfection, but the *Bacillus prodigiosus* is the organism usually preferred. The control of the disinfection is accomplished by exposing threads soaked in a culture of *Bacillus prodigiosus*. After the disinfection is completed, these threads are inoculated into Dunham's peptone. If any of the bacilli have survived, the fact will be indicated by the red color of the peptone solution.

LITERATURE ON TRANSMISSION OF DISEASE BY INSECTS

To the Editor:—I should like to have some literature on the transmission of diseases by insects. Can you refer me to any?

F. S. MARTIN, M.D., Beaumont, Tex.

ANSWER.—Following is a list of articles on various phases of this subject:

THE HOUSE-FLY

Howard, L. O.: The House-Fly: Disease Carrier, New York, F. A. Stokes Company, 1911, contains an excellent bibliography.
Doane, R. W.: Insects and Disease, New York, Henry Holt & Co., 1910.
Rose, H. H.: Reduction of Domestic Flies, J. B. Lippincott Company, Philadelphia, 1913, price $1.50.
Hodge, C. F.: How You Can Make Your Home, Town or City Flyless, Nature and Culture, 4 West Seventh Street, Cincinnati. Price, 2 cents.
Stockbridge, Frank P.: How to Get Rid of Flies, World's Work, April, 1912.

THE BEDBUG

The Housefly and the B. B., editorial, THE JOURNAL, June 29, 1912, p. 2036.
Sergeois, E.: Bedbugs as Carriers of Disease, *Arch. f. Kinderh.*, 1912, lvii; abstr., THE JOURNAL, Feb. 24, 1912, p. 594.
Manning, J. C.: Bedbugs and Bubonic Plague, *Med. Rec.*, July 27, 1912.
Riggs, R. E.: Bedbugs as Carriers of Typhoid, *Military Surg.*, September, 1912.

THE WOODTICK

Ricketts, H. T.: The Transmission of Rocky Mountain Spotted Fever by the Bite of the Wood Tick (Dermacentor Occidentalis), THE JOURNAL, Aug. 4, 1906, p. 358.
Ricketts, H. T.: Further Observations on Rocky Mountain Spotted Fever and Dermacentor Occidentalis, THE JOURNAL, Oct. 6, 1906, p. 1067.
Pearse, H. A.: Tick, or Rocky Mountain Spotted Fever, *Denver Med. Times and Utah Med. Jour.*, February, 1909.

OTHER INSECTS

Queries and Minor Notes, THE JOURNAL, Oct. 19, 1912, p. 1473; June 24, 1911, p. 1900; Sept. 22, 1911, p. 1076; Nov. 9, 1912, p. 1733, and April 19, 1913, p. 1245.
Doty: The Mosquito: Its Relation to Disease and Its Extermination, New York, Daniel Appleton & Co., 1912, price 75 cents.

ARTICLES ON MEDICAL EDUCATION

To the Editor:—A member of our high-school faculty is preparing to give a series of lectures to the students on the choice of a vocation, expecting to present to them a picture of what is required in the way of education and the future of the various professions and trades. A number of good articles along this line, especially the educational side, have appeared in THE JOURNAL within the past year or two; can you give me a list of the articles that you think would be of assistance to him? I expect to place my JOURNAL files at his disposal. C. R. ZENER, M.D., Wenatchee, Wash.

ANSWER.—Following is a list of references to the subject of medical education which have recently appeared in THE JOURNAL:

Meltzer, L. J.: The Training of the Desirable Practitioner and His Mission, Aug. 24, 1912, p. 585.
Dodson, J. M.: The Addition of a Fifth Year to the Medical Curriculum, Aug. 24, 1912, p. 589.
Educational Numbers, Aug. 24, 1912, and April 5, 1913.
Adami, J. G.: The Future of the Medical Man, Aug. 23, 1913, p. 526.
Pratt, F. H.: Teacher and Learner in Medicine, Aug. 30, 1913, p. 646.
Guthrie, G. W.: The Passing of the Family Doctor, Nov. 8, 1913, p. 1710.
Bevan, A. D.: Medical Education and the Hospitals, March 29, 1913, p. 974.

BIEBRICH SCARLET STAIN IN DIABETES

To the Editor:—Please describe the method of making a Biebrich scarlet stain of the blood in diabetes.

E. C. HAYMAN, M.D., Lincoln, Neb.

ANSWER.—The technic of making a Biebrich scarlet stain of the blood in the determination of diabetes is as follows: Make thick smears of the blood, in the usual way, on glass slides. Allow to dry in the air and fix over the flame. Cover the smears with a 1 per cent. aqueous solution of Biebrich scarlet and allow to remain for a few minutes. Rinse lightly in water and dry. Smears stained in this way will show an intense red if the blood is taken from a diabetic, while normal blood is unstained.

REQUEST FOR REPORTS OF WORK ON PREVENTION OF BLINDNESS

To the Editor:—Through THE JOURNAL I desire to ask societies and individuals in the United States engaged in the work for prevention of blindness kindly to forward me reports of this work, or at least to give me the addresses of such societies or individuals. There is no organized work of this sort in the Territory of Hawaii. H. P. NOTTAGE, M.D., 31 Young Building, Honolulu, T. H.

Medical Economics

THIS DEPARTMENT EMBODIES THE SUBJECTS OF POST-GRADUATE WORK, CONTRACT PRACTICE, LEGISLATION, MEDICAL DEFENSE, AND OTHER MEDICOLEGAL AND ECONOMIC QUESTIONS OF INTEREST TO PHYSICIANS

HARRISON OPIUM BILLS

In THE JOURNAL for Aug. 2, 1913, page 360, there appeared an article which outlined in brief H. R. 1967, H. R. 1966 and H. R. 6282 or the "Harrison opium bills," so-called.

All three measures were passed by the House during the special session of Congress last summer, and were referred to the Senate for its concurrence. The first two of these three bills, that is, H. R. 1967 and H. R. 1966, were, according to the *Congressional Record*, Jan. 12, 1914, page 1566, passed by the Senate with slight amendment and returned to the House. Then on the same day, January 12, the lower legislative body by an affirmative vote concurred in the bills as amended so that the two measures await but the signature of the President prior to finally becoming the law.

From the *Record*, it would appear that H. R. 1967, the bill intended to prevent the manufacture of smoking-opium in the United States, was amended by the Senate in chiefly two points, namely, the tax per pound on smoking-opium manufactured in the United States is increased from $200 to $300, and the definition of smoking-opium is broadened in order to include a larger field.

H. R. 1966, the bill intended to prevent the importation of opium for other than medicinal purposes, was likewise amended, but in what regard is not shown in the *Record*.

H. R. 6282, the bill requiring the registration and taxation of physicians and others dealing in habit-forming drugs is, according to latest reports, still in the finance committee of the Senate.

SOCIALIZATION OF MEDICINE IN ENGLAND

Discussion of the British insurance act, its operation and its influence on the practice of medicine, continues to be the most important subject for consideration in the British medical journals. This importance is emphasized by the leading editorial in the first number of the *Lancet* for the new year. Under the title "Humanism and Medicine," the *Lancet* discusses the situation from a sociologic and economic rather than a professional point of view. Starting with the assertion that "the calling of medicine is passing through a very anxious phase," the *Lancet* asserts that the present legislation for national insurance against sickness must be regarded as a phase in the development of medical practice, and that while the machinery and methods by which this development has been brought about may be criticized, and may even be regarded as retrogressive, yet it must be admitted that it has brought about a wider understanding by the public of the essential part that medicine must play in social reform. Using the term "medicine" to designate the work of the scientific medical profession in its widest sense, the writer asserts that the outlook is not one of gloom, but that, on the contrary, the public is demanding that physicians in every branch of their calling should assist in the improvement of the social, moral and physical conditions of the state. One of the most remarkable evidences of the increasing influence of medicine is that a medical side to all things is making its appearance, and that it is being recognized that medicine is essentially one of the branches of human learning that requires the cooperation of humanity in its development. In an interesting comparison between the development of classical learning during the sixteenth century and of scientific knowledge during the nineteenth century, the editor asserts that, previous to the development of modern scientific knowledge, the classics were cultivated because of a conviction that in them was found general instruction in the affairs of life which would be of value to a man in any position of responsibility or service; but to-day, while a classical education still remains valuable, the subjects on which the

public instinctively seeks knowledge are those of the natural sciences. With the spread of scientific knowledge it will inevitably follow that the principles of medicine will become familiar to the educated classes, and that this will have a beneficial effect, as true scientific medicine must ever be found on the side of peaceful reform. Enumerating the results already secured, it is pointed out that war between civilized nations is at present more difficult and more easily avoided, because rulers and counselors know that the conditions of warfare are such as to defy the principles of common humanity and cause an enormous amount of avoidable suffering. A growing knowledge of diseases is altering practical geography, as in the case of the construction of the Panama Canal, the control of tropical diseases and the facilitation of commerce and development. Social reform in all nations is based on the teachings of hygiene, whether directed toward eugenics, education or the control or abolition of poverty and disease. The *Lancet* editorial is noteworthy for its far-sighted and clear view, and for its realization of the fact that medicine is becoming socialized, and that the medical profession must alter its methods to conform to this change. That the future of the profession, not only in Great Britain but also throughout the civilized world, will be far greater than its present sphere, admits of no question.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

KANSAS: Topeka, Feb. 9-11. Sec., Dr. H. A. Dykes, Lebanon.
MISSOURI: Jefferson Hotel, St. Louis, Feb. 9-11. Sec., Dr. J. A. B. Adcock, Jefferson City.
NEBRASKA: Lincoln, Feb. 11. Sec., Dr. H. B. Cummins, Seward.
NEW YORK: Jan. 27-30. Mr. Harlan H. Horner, Chief of Examinations Division, Albany.

New Hampshire Reciprocity Report

Mr. H. C. Morrison, regent of the New Hampshire State Board of Medical Examiners, reports that 4 candidates were licensed through reciprocity from Jan. 1 to Dec. 31, 1913. The following colleges were represented:

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
George Washington University	(1908)	Wisconsin
Maryland Medical College	(1912)	W. Virginia
Hahnemann Med. Coll. and Hosp., Philadelphia	(1909)	New Jersey
University of Vermont	(1897)	Vermont

Mississippi October Report

Dr. E. H. Galloway, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, Oct. 28-29, 1913. The number of subjects examined in was 8; total number of questions asked, 64; percentage required to pass, 75. The total number of candidates examined was 33, of whom 19 passed and 13 failed. For one candidate the report is not yet complete. Four candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Alabama	(1913)	78
Atlanta College of Physicians and Surgeons	(1913)	82
Tulane University, (1910) 80; (1912) 83+, (1913) 75, 78, 82, 83		
Columbia University, College of Phys. and Surg. (1913)		86, 88
Medical College of Ohio	(1890)	81
Jefferson Medical College	(1910) 84; (1913)	87
Meharry Medical College	(1913)	77
Memphis Hospital Medical College (1904) 75; (1912) 75; (1913) 76, 79.		
University of Tennessee	(1913)	75

FAILED

University of Alabama	(1913)	69
Reliance Medical College	(1911)	56
Tulane University	(1913)	71
Mississippi Medical College	(1909)	72
Meharry Medical College	(1907) 63; (1911)	65
Memphis Hospital Medical Coll. (1912) 63; (1913) 64,	70,	73
University of Nashville	(1906)	71
University of Tennessee	(1912) 70; (1913)	70

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University Woman's Med. School	(1888)	Virginia
University of Louisville	(1897)	W. Virginia
Memphis Hospital Med. Coll. (1905) Tennessee;	(1908)	Tennessee

Utah October Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Oct. 6-7, 1913. The number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 5, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1913)	80.8, 82.1
College of Physicians and Surgeons, Baltimore	(1913)	75.8
Johns Hopkins University	(1915)	84.3
Jefferson Medical College	(1913)	83.9

Utah January Report

Dr. G. F. Harding, secretary of the Utah State Board of Medical Examiners, reports the written examination held at Salt Lake City, Jan. 5, 1914. The number of subjects examined in was 19; total number of questions asked, 100; percentage required to pass, 75. The total number of candidates examined was 6, of whom 5 passed and 1 failed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Denver and Gross College of Medicine (1906) 87;	(1908)	79
St. Louis University School of Medicine	(1913)	81.4, 85.7
Columbia University	(1913)	84.3

FAILED

Chicago Physio-Medical College	(1897)	62.2

Oklahoma October Report

Dr. John W. Duke, secretary of the Oklahoma State Board of Medical Examiners, reports the written examination held at Muskogee, Oct. 14-16, 1913. The number of subjects examined in was 10; total number of questions asked, 100; percentage required to pass, 70. The total number of candidates examined was 9, of whom 8 passed and 1 failed. Thirteen candidates, including 1 osteopath, were licensed through reciprocity since July, 1913. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
University of Arkansas	(1913)	86
Bennett Medical College	(1913)	86
University of Illinois	(1912)	78
Tulane University	(1913)	78
University of Michigan, Dept. of Med. and Surg.	(1913)	84
University of Oklahoma	(1913)	83
Jefferson Medical College	(1911)	84
Baylor University, College of Medicine	(1913)	71

FAILED

College of Med. and Surg., Physiomedical, Chicago	(1903)	54

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
University of Arkansas	(1912)	Arkansas
Atlanta College of Physicians and Surgeons	(1902)	Texas, (1902) Mississippi.
Georgia Coll. of Eclectic Med. and Surg.	(1880)	Arkansas
Bennett College of Eclectic Med. and Surgery	(1879)	New Mexico
Kentucky University, Medical Dept.	(1905)	W. Virginia
University of Louisville	(1910) Mississippi, (1911)	Texas
Barnes Medical College	(1896)	Arkansas
St. Louis College of Physicians and Surgeons	(1888)	Texas
Memphis Hospital Medical College	(1912)	Texas
Southwestern University Medical College	(1905)	Arkansas

ANATOMY AND HISTOLOGY

1. Give a short description of the histological structure of bone. 2. Describe and give usual situation of Peyer's patches. 3. What kind of epithelium covers (a) the pleura, (b) the mucous membrane lining the air passages? 4. How would you distinguish a cervical from a dorsal vertebra? 5. Describe the hip joint. Why is there frequently pain about the knee in hip joint disease? 6. Give origin, course, relation to its fellow and the distribution of the optic nerve. 7. At what point does the spinal cord terminate? 8. Give the origin, the course and the principal branches of the great sciatic nerve. 9. Give the origin and the principal branches

Hawaii. H. P. NOTTAGE, M.D., 31 Young Building, Honolulu, T. H.

of the pneumogastric nerve. 10. Describe the saphenous opening. In what directions would you make taxis in reducing a femoral hernia?

BACTERIOLOGY AND PATHOLOGY

1. Describe the pathological changes that take place in arteriosclerosis. Give the most common cause for same. 2. Name three forms of pulmonary emphysema. Give pathology of each form. 3. Define and give pathology of phlebitis. 4. What is pneumonokoniosis? Give pathology of same. 5. Name three forms of pleurisy. Give pathology of each form. 6. Give method of staining the bacilli of typhoid fever and tuberculosis. 7. Name four varieties of eczema. Give pathology of each form. 8. Define pathogenic bacteria and name three pathogenic diplococci. 9. Name three methods by which you can determine whether an organ is or is not pathogenic. 10. Name and describe two tests in diagnosing a suspected case of tuberculosis.

CHEMISTRY

1. What are the normal salts; acid salts; basic salts; double salts? 2. Convert Centigrade into Fahrenheit. 3. Complete the equation, $2AgNO_3+2NaOH=$? 4. What is an element and show what element is common in all acids. 5. Give two tests for morphin. 6. Define allotropism and osmosis. 7. What are albuminoids? Name some of the important albuminoids. 8. Name the halogens and state in what respect they exhibit marked similarity. 9. Give antidotes for strychnine poisoning, also for iodine poisoning. 10. Give Haine's test and the heat and nitric acid tests for urine.

PHYSIOLOGY

1. Define irritability as applied to muscle and nerve, and classify irritants. 2. Is it possible for the human stomach to be digested by its own gastric secretions? If so, under what conditions? 3. What keeps the blood from coagulating in the vessels, and what causes it to coagulate when shed? 4. Describe the mechanism and function of the semilunar valves and tell which one contributes to the second sound of the heart. 5. Name eight conditions affecting body temperature. 6. Give deep origin and distribution of one cranial nerve that has motor function only. 7. Give distribution and function of the tenth cranial nerve. 8. What effect does the injection of atropin into the blood have on the secretion of the salivary glands? 9. Tell the difference between chyle and chyme. 10. The removal of what digestive organ would cause excessive sugar in the urine and death in a short time?

OBSTETRICS AND HYGIENE

1. Differentiate between position and presentation. 2. Name three acute diseases of the mother that endanger the life of the fetus. State the danger to fetus and what steps you would take to prevent it. 3. If on making your first examination of a case of labor you should find a complete placenta previa what would be your line of treatment? 4. What would be your treatment in a case of eclampsia earlier than the eighth month of pregnancy? 5. How would you determine that a fetus was at full term when born? 6. What is the most common cause of a chill on the third day after delivery? What treatment would you use and what precautions to prevent it? 7. What are the symptoms most prominent in extra-uterine pregnancy? 8. How would you conduct a case of post partum hemorrhage? 9. What are the most common pollutions of well water? How free a well from same? 10. What are the best agents for disinfecting a room where small-pox had been treated? How would you proceed?

MATERIA MEDICA AND PRACTICE

1. Give indications for the use of ergot. What is the effect of a toxic dose? 2. Give indications for the use of quinine. How may it effect those having an idiosyncrasy for the drug? 3. Differentiate a functional derangement from an organic lesion. 4. Differentiate intercostal neuralgia from pleurisy. 5. Diagnose and treat apoplexy. 6. Give prophylactic treatment of diphtheria. Typhoid fever. 7. How is iodin obtained? Name some of its uses. 8. In what conditions would you use a poultice? Why? 9. Give indications for the use of veratrum viride. 10. Cerebrospinal meningitis. Give etiology, diagnosis and treatment.

GYNECOLOGY

1. Give etiology and treatment of dysmenorrhea. 2. Diagnose and treat carcinoma of cervix. 3. Name the causes of sterility. 4. Treat gonorrheal endometritis. 5. Diagnose extra-uterine pregnancy before rupture. 6. Give etiology and treatment of amenorrhea. 7. Diagnose and treat uterine polypus. 8. Diagnose carcinoma of the breast. 9. What conditions may result from gonorrhea in women? 10. Differentiate malignant, tubercular and syphilitic ulcer of vagina.

TOXICOLOGY AND MEDICAL JURISPRUDENCE

1. In what diseases is the Argyll Robertson pupil always present? 2. Name fatal dose of zinc chlorid; fatal period and treatment. 3. Name fatal dose of strychnin; fatal period; treatment and post-mortem appearance. 4. Name fatal dose of opium; fatal period and treatment. 5. Name fatal dose of tr. digitalis; fatal period. 6. What is paranoia? Paretic dementia? 7. What is criminal abortion? 8. Give important symptoms of death by throttling: face, mouth, tongue, skin. Post-mortem: heart, lungs, stomach, etc. 9. Give post-mortem findings in death from carbolic acid poisoning. 10. What are the necessary proceedings for the pauper insane?

SURGERY

1. Give the etiology, varieties and symptoms of erysipelas. 2. Describe the surgical methods for the reestablishment of joint functions in confirmed ankylosis. 3. Mention the inflammatory diseases of the bones. 4. What is shock, and how should it be treated? 5. What agents are employed for the production of local anesthesia? 6. What articular changes take place in dislocation? What are the general principles governing the treatment of dislocations? 7. How would you diagnose and treat a case of fracture of both bones of the forearm, occurring at the middle third? 8. What tissues are divided in the operation for oblique inguinal hernia? 9. Differentially diagnose phimosis and gonorrhea from phimosis and subpreputial chancroid. 10. When do the secondary symptoms of syphilis normally appear? What are these symptoms? When do the tertiary symptoms appear?

PHYSICAL DIAGNOSIS

1. What do you understand by the establishment and failure of compensation in valvular heart disease? 2. How many periods or stages are usually met with in the progress of a case of valvular heart disease relative to compensation and failure? Name them. 3. Give some of the common causes of jaundice and the significance of jaundice as a diagnostic symptom. 4. Name diseases in which the knee-jerk is almost absent or completely abolished. 5. What can be felt beneath the normal abdominal walls? 6. Give local signs of appendicitis. 7. Name the five methods usually adopted in examining the thoracic organs. 8. What is understood by asthmatic breathing? By Cheyne-Stokes breathing? By restrained or catchy breathing? By stridulous breathing? 9. Give diagnosis of bronchial pneumonia. 10. What is a crepitant râle?

Book Notices

PRINCIPLES AND PRACTICE OF MEDICAL HYDROLOGY. Being the Science of Treatment by Waters and Baths. By R. Fortescue Fox, M.D., F.R., Met. Soc. Cloth. Price, $2. Pp. 295. New York: Oxford University Press, 1913.

This book discusses the physiology of bathing, hydrotherapy, mineral springs and baths and the indications for hydrologic treatment. In its preparation Fox has made use of the Hyde lectures of 1911 and other contributions which he has made to balneology. He practiced for twenty years at a British spa, and has produced a volume that is readable, instructive, systematic and founded on sound physiology. He says of spa treatment that it is a vain and fruitless ambition for any locality to introduce and exploit all the methods of other places. It is not the number of treatments that counts, but their quality and the skill and discrimination with which they are applied. He remarks that the employment of baths after rheumatic fever is liable to be followed by cardiac debility, and the effect of temperature should be carefully watched. The insidious progressive polyarthritis of young subjects, which is doubtless infective, is accompanied by a profound debility and can seldom, in the judgment of Dr. Fox, be submitted to any form of spa treatment. On the other hand, the arthritis supervening in middle life, always associated with faulty metabolism or defective elimination, clearly marks it out for treatment by waters and baths. The cardinal rule of treatment divides rheumatic cases into two classes—those which require a sedative and those which require a stimulant and intensive treatment. The book abounds in sound, practical advice, and affords help where it is greatly needed. It closes with an index of waters and baths for the guidance of practitioners in selecting spas or medicinal springs for their patients.

BOOK ON THE PHYSICIAN HIMSELF AND THINGS THAT CONCERN HIS REPUTATION AND SUCCESS. By D. W. Cathell, M.D., and William T. Cathell, A.M. M.D. Twelfth and Final Edition. Cloth. Price, $2.50. Pp. 407. Philadelphia: F. A. Davis Company. 1913.

"The Physician Himself" first appeared in 1882. It was then a comparatively small book. It has grown larger with each edition, until now it is quite a pretentious volume. The title page of this edition carries the statement that it is "the twelfth and final edition." It is seldom that the word "final" is used in such a way, and it is to be hoped that the statement will prove to have been premature. While the book has increased in size with each edition, it has also improved in character, on the principle of the more good things the better. It contains excellent advice and comments on the physician's work, his relations to the profession and to the public, etc. While here and there the views expressed or the comments may not receive the endorsement of every one, on the whole they are excellent. The book is full of good things and good advice, especially for the young physician.

ARTIFICIAL PARTHENOGENESIS AND FERTILIZATION. By Jacques Loeb, Member of the Rockefeller Institute for Medical Research. Translated from the German by W. O. Redman King, B.A., Assistant Lecturer in Zoology at the University of Leeds. Cloth. Price, $2.50. Pp. 312, with 87 illustrations. Chicago: The University of Chicago Press, 1913.

This is essentially a critical summary of Dr. Loeb's work in artificial parthenogenesis. It gives a survey of the methods by which the unfertilized egg (of invertebrates and of vertebrates) can be caused to develop into an embryo, and the conclusions which can be drawn concerning the mechanism by

which the spermatozoon produces this effect. Dr. Loeb believes that the fertilization of the egg by the spermatozoon involves two factors, one of the processes being akin to cytolysis, the other (designated the "corrective factor") causing a temporary depression of the oxidation in the egg. Both of these factors are probably independent of the material in the spermatozoon that serves as the vehicle of paternal heredity.

The problem of fertilization is intimately connected with many different problems of physiology and pathology, such as the natural death of the unfertilized egg and the prolongation of its life by fertilization, the fertilization of the egg by foreign blood and the immunity of the egg to the blood of its own species, and the relation between heterogenous hybridization and artificial parthenogenesis. The facts recorded and discussed in the book therefore go beyond the special problem indicated by the title.

The field of artificial parthenogenesis was opened and is to-day essentially dominated by the work of Dr. Loeb and his students, which constitutes one of the most important contributions to cellular physiology of all time. We believe that Dr. Loeb's work will be of greater value in the field of pathologic physiology (growth of tumors) than in the field of normal fertilization and development, and it is to be regretted that the relation of artificial parthenogenesis to tumor formation is not discussed at some length in the book. The details of Dr. Loeb's contribution to science are well known to the workers in dynamic biology and physiology. They should be just as familiar to the pathologist and the internist.

A MANUAL OF SURGERY FOR STUDENTS AND PHYSICIANS. By Francis T. Stewart, M.D., Professor of Clinical Surgery, Jefferson Medical College. Third Edition. Cloth. Price, $4 net. Pp. 742, with 571 illustrations. Philadelphia: P. Blakiston's Son & Co., 1913.

The appearance of a third edition so soon after the publication of the second is evidence of the popularity of this book. It is essentially a manual, stripped of unnecessary words and matter, and is therefore a good book for everyday use. Much information is crowded into it, although for fuller discussions, larger and more complete works on surgery must be consulted. The first chapter of this edition is devoted to diagnosis and the Roentgen ray, a decided innovation in text-books on surgery. The text is by no means exhaustive, but nevertheless is of value. Only fourteen pages are devoted to anesthesia, but every known method is discussed, the open ether method being given the preference. Surgical bacteriology, surgical technic, bandaging and surgical pathology are dealt with in an admirably concise but instructive manner. The surgical lesions of each system and viscus are discussed in the succeeding chapter and many illustrations are used to clarify the text. Only one fault is to be found with the book and that is a mechanical one: the type is too small and is set too closely. The eye is tired quickly, and better-made books are apt to be consulted.

UEBER DAS SINNESLEBEN DES NEUGEBORENEN. (Nach physiologischen Experimenten.) Von Dr. Silvio Canestrin, Assistent der Nervenklinik in Graz. Paper. Price, 6 marks. Pp. 104, with 60 illustrations. Berlin: Julius Springer, 1913.

This is a contribution to the psychophysiology of the newborn by means of exact laboratory experiments. Contrary to the older methods of study which made use of the infant's behavior as indicative of pleasure or pain, the author utilizes the differences in the cerebral pulsations and the respiratory curves which occur as a result of various stimuli on the senses, and makes graphic records of these. To prove that a mere look at the child is not sufficient to indicate the inner workings of its primitive psyche, Canestrini cites the following experience: He had occasion to observe a sleeping infant react to acoustic stimuli (the blowing of a trumpet) by an increase in cerebral pulsations and a decrease of the respiratory rhythm, while it continued to sleep, and gave no other visible sign of auditory stimulation. This chance observation led him to undertake a series of experiments on the primitive special senses of the infant, which he recorded. While his results are not far-reaching in their bearings on a correct understanding of the development of human intelligence, they constitute a modest beginning in our recognition of the elementary relations between matter and mind as we can observe them experimentally in earliest infancy. It is possible, as it were, to see the mind grow by external stimulation. The book is worth reading and the experiments worthy of repetition.

DISEASES OF THE STOMACH. Including Dietetic and Medicinal Treatment. By George Roe Lockwood, M.D., Professor of Clinical Medicine in Columbia University. Cloth. Price, $5.50 net. Pp. 624, with 141 illustrations. Philadelphia: Lea & Febiger, 1913.

This is an excellent presentation of the subject. The book is not loaded with the extra chapters devoted to anatomy, histology and physiology usually found in such monographs. The author devotes his energy to a discussion of diseases of the stomach and to an account of his own experience in diagnosing and treating them. The detail and thoroughness of the discussion of individual topics is shown by the fact that more than a hundred pages are devoted to a consideration of acute and chronic ulcer and as much more space to malignant and benign tumors or growths in the stomach. Modern methods of diagnosis are described as they are applicable to each disease. Especially helpful are the numerous reproductions of roentgenograms and the discussions of their value in the diagnosis of various diseases of the stomach. This feature is timely and adds greatly to the value of the book, as such discussions have not yet found a place in many of the systematic monographs on diseases of the stomach.

DIE RASSENHYGIENE IN DEN VEREINIGTEN STAATEN VON NORDAMERIKA. Von Géza von Hoffmann, k. u. k. österr.-ungar. Vizekonsul. Paper. Price, 5 marks. Pp. 237. Munich: J. F. Lehmanns, 1913.

This is a popular presentation of the various activities in this country of a eugenic nature with a view to stimulating among Europeans a greater interest in the eugenic movement. The author is deeply and favorably impressed with what is being done in that direction in the United States. For the benefit of the German reader there is appended a bibliography of seven hundred titles of American articles and publications in regard to sex hygiene and eugenics, which may be useful to Americans also. American physicians and others will read this book with interest, as it is a sincere effort to give a trustworthy picture of what is being done in the lines indicated.

Miscellany

The Economic Value of Scientific Research.—A lecture on this subject was delivered under the auspices of the Science Association of the Adelaide University, August 6, by Dr. T. B. Robertson, a graduate of the university, now professor of physiologic chemistry in the University of California. The lecturer discussed the questions: 1. Is money expended in furthering scientific research a good investment? 2. What is the actual profit which the world reaps from such investments? 3. Does the money at present expended on scientific research bear any adequate proportion to the profit which may be expected to accrue? In dealing with the first and second questions, Dr. Robertson pointed out that the invention of the electric motor, which resulted from a discovery of Faraday, of which the cost was negligible, had rendered possible the utilization of water-power at a distance. In its waterfalls the United States possessed 37,000,000 potential horse-power, which at about $20 per horse-power per annum, was equal to a yearly income, not yet realized, of about $700,000,000, corresponding at 3 per cent. interest to a capital value of about $24,000,000,000. The total receipts of all the higher institutions of learning in the United States in 1910 was only about $75,000,000, corresponding to a capital investment of about $2,500,000,000. Only a fraction of this was spent in scientific training, and an insignificant fraction of that in research. Yet the inventions which were the conse-

quence of this training and research were worth about $365,000,000 per annum. The total endowment of the Rockefeller Institute, the greatest institute for medical research in the world, was only about $4,000,000. Yet in a few years of its existence it had already given them the means of curing two of the greatest scourges of humanity—cerebrospinal meningitis and pneumonia. There was at present absolutely no means of automatically securing to scientific research a proportion, however minute, of the wealth it produced. A small proportion, even if it were only a few tenths of a per cent. of the income proceeding from the utilization of patented inventions, might be appropriated by the state and employed to endow scientific research.—*Australasian Med. Gaz.*

The Antivivisectionists.—The antivivisectionists are having a riotously good time this week (December, 1913). They are assembled in national conclave, and, with the newspapers relaying to the public all they say, each member is outvying the other in wild and irresponsible statements. One speaker declared that 33 per cent. of the doctors were addicted to the use of drugs. It is an appalling statement. One doctor in every three has the drug habit! But the most remarkable part of the statement is how a man without the use of drugs could make it.

The gentleman who gave a third of our physicians hypothetical injections was soon outdone by some of his colleagues. It was jauntily declared that children were being vivisected in New York hospitals and places of medical research. The statement was enthusiastically applauded and evidently believed. But this orgy of wild statements is nothing new. It is but a repetition of the riot of ignorance that fought every step of medicine's progress in the prevention of smallpox epidemics during the nineteenth century.

Vivisection has been made practically painless. But even if it had not, it is better that every guinea-pig in Ohio should be utilized for experimentation than that your child should die of diphtheria. From vivisection we have secured not only the antitoxin that has deprived diphtheria of its terrors, but typhoid vaccine and the serum for the dread disease, spinal meningitis. But we have not the space to catalogue the achievements of vivisection. Suffice it to say that the wonderful sanitary conditions prevailing in Panama and the canal itself would not have been possible without animal experimentation.

The antivivisectionists have been called sentimentalists. But which are the true sentimentalists—the physicians who seek scientific truth in a laboratory that they may conserve the life and health of human beings, or the men and women who much prefer the safety of guinea-pigs and frogs?—*Cincinnati Times-Star.*

Unlicensed Physicians.—The secretary of the State Board of Health of West Virginia, according to the *West Virginia Medical Journal*, recently addressed a communication to the attorney-general of the state on two interesting questions in connection with the practice of medicine by unlicensed practitioners. In that state, it appears, it has been the custom for certain unlicensed physicians to practice under the protection of licensed practitioners, and it is said that the opinion seemed to prevail that this could be legally done. The attorney-general in his opinion on this point held that an unlicensed physician has no legal right to practice medicine and surgery under the protection of a regularly licensed practitioner either in the same office with him or at any other place. Since it has been the experience in West Virginia that in attempting to prosecute unlicensed or irregular practitioners public prosecuting attorneys have declined to conduct such prosecutions, the secretary of the State Board of Health asked the attorney-general what recourse the board had against this refusal on the part of the prosecuting attorneys. The attorney-general said:

"If the prosecuting attorney declines to prosecute an unlicensed practitioner when his attention is called to the same by the State Board of Health, the state board should report the fact to the circuit court of the county, and proceedings should be instituted . . . to remove him from office."

The law under which proceedings could be instituted is a general one, which provides that if any prosecuting attorney shall compromise or suppress any indictment or presentment without the consent of the court entered of record, he would be guilty of malfeasance in office and may be removed therefrom in the mode prescribed by law. Similar provisions as to malfeasance are in existence in every state, and prosecuting attorneys who fail to do their duty in respect to prosecuting unlicensed practitioners, quacks, etc., may be made to do so, though this would be a cumbersome, expensive and probably ineffective proceeding. The secretary of the West Virginia board calls attention to the fact that in the matter of unlicensed and irregular practitioners the proper method for procedure is for local physicians to collect what evidence may be needed and place this in the hands of the prosecuting attorney of the county, insisting on his performing his sworn duty.

The Friedmann Tortoise Bacilli Boom.—The history of medicine presents a strange medley of superstition, fads, South Sea bubbles, personal booms, mingled with a vast redeeming amount of devoted searching after truth, and here and there a solid stride ahead in scientific knowledge. After all said and done, the world owes an untold debt to the humble and ill-requited toilers after truth, who have done more to better the lot of mankind than all the soldiers who have fought for less noble purposes since man first evolved into an animal capable of using arms and of organizing armies. To turn from this picture to that of a German medical man who, by all accounts, has reaped a huge fortune in America from an alleged cure for consumption is, indeed, to look on a counterfeit presentment—two brothers of widely differing character. Dr. Friedmann's curative tortoise serum was not accepted by the orthodox medical profession in the United States, but that fact apparently did not prevent its adoption by a heavily capitalized commercial syndicate. Dr. Friedmann has since returned to Berlin and, according to recent reports, has at last consented to permit his serum to be used by all German physicians. It seems clear that, even under the most favorable circumstances, a long time must elapse before medical experts will be enabled to arrive at definite conclusions as to the value of the remedy, which nevertheless created a record "boom" in the United States.—*Med. Press and Circular*, London.

Paralysis During Antirabic Treatment.—With the apparent increase in rabies in the United States and the facilities afforded by biologic laboratories for applying the antirabic treatment of Pasteur so that this treatment may be demonstrated by any physician, it is important to know that, though such sequelae are comparatively rare, a number of cases of paralysis have occurred following this treatment. In *Public Health Reports*, Oct. 24, 1913, H. E. Hasseltine of the United States has collated the cases occurring abroad and in this country. The article is found in Reprint 148. There seems to be a difference of opinion among neurologists as to the exact lesion of this paralysis. Some describe it as a myelitis, others as a neuritis. One case showed an ascending paralysis. Among the various theories which account for the paralysis, that of anaphylaxis, resulting from the injection of foreign animal tissue seems to Hasseltine to be the most plausible. Stimson reports that there have been seventy-six cases with four deaths. Hasseltine, from the records of the Hygienic Laboratory of cases of rabies reported from the various Pasteur institutes, has found three cases of paralysis noted. Hasseltine believes it important that physicians should report all such cases.

Experimental Insect Transmission of Anthrax.—Mitzmain, veterinary entomologist in the government service in the Philippines, in *Public Health Reports*, Jan. 9, 1914, reports three positive cases of experimental insect transmission of anthrax. The insects used in these expperiments were *Stomoxys calcitrans* and *Tabanus striatus*. Owing to the difficulty of telling when the anthrax infection appears in the peripheral blood of the larger animals, guinea-pigs were used in these experiments. In the first trials the donors were employed from twenty-four hours to three days prior to

their death, and although characteristic cultures were obtained from the blood, no transfer of infection through the bite of the flies resulted in many experiments. The results were likewise negative when the blood was taken from animals recently dead. In the successful experiments on artificially infected guinea-pigs the flies were applied from two and one-half hours to a few minutes before the death of the guinea-pigs. Other guinea-pigs were used to receive the infected bites of the two insects named. The flies were interrupted while feeding on the sick animal and transferred to the healthy animal in one instance in ten seconds and in another instance at an interval of ten minutes. The exposed animals died in both cases on the third day, and a typical picture of anthrax infection was presented in the necropsy. Similar results were obtained when horse-flies were employed to transfer the disease. Cultures from the experimental guinea-pigs reproduced the disease in a horse. The anthrax organism was found in the feces of all these flies at varying intervals up to nineteen days, and in later experiments the disease was transmitted by biting at twenty-minute intervals after feeding on the infected animal. A series of experiments is being conducted with anthrax in cattle and horses, and an attempt will be made to determine the limits of infection in flies acting as carriers.

Medicolegal

Construction, Validity and Importance of Medical Practice Act—Application to Treatment by Suggestion by a "Vitapathic"

(Smith vs. State (Ala.), 63 So. R. 28)

The Court of Appeals of Alabama affirms a judgment of conviction of the defendant Smith of treating human diseases without having obtained a certificate of qualification from the State Board of Medical Examiners. The court says that it was admitted that the defendant held himself out and offered to treat and did treat human diseases for a consideration in money; that he gave the patient, in the particular case relied on by the state for conviction, a little bottle of white pills to take internally, and had her place her feet in a tub of water, while holding with her hands the cords of a dry electric battery, which he had placed in the tub; that he diagnosed the case of the patient as that of "general debility," and professed to be able to cure her entirely with ten or twelve of such electrical treatments at $1 per treatment, promising a refund of the money if no good resulted.

The defendant styled himself a "Vitapathic and Scientific Healer," and as a witness in his own behalf explained his system of treatment substantially as follows: "I treat diseases of human beings, rather I bring about a state of thought in the patient which works the healing of disease. It is really the power of mind over matter . . . If we can get a person to really thinking and believing that he is getting better and is going to get well, he will get well. As to the little white pills I give, they are simply a little predigested food . . . I do not give them as a curative remedy, but simply to assist me in getting the patient to the point of believing, on my suggesting it, that he is getting better and is going to get well . . . The reason the use of these things helps me in getting a person to believe in the fact that he is going to get well is because people all over the country are so accustomed to medicine being used as a cure for disease that by the employment of what appears to be such, in connection with my suggestion of health, I can bring about the desired mental action quicker and sometimes more effectively. These means are entirely harmless and ineffective as a remedy, aiding only as a suggestion. Anybody could give the little pills—all of them could be taken without bad effect—and anybody could apply the little battery, a single little dry telephone battery with two little cords attached to it. . . . I do not always use the same thing for the same disease. I sometimes use salves or simple salt water to get the patient's mind in proper condition. In some cases I do not use anything; that is, when without it I can get the attention of the patient and belief on his part in his recovery. . . . There is no hypnotism whatever about my system of treatment. I know nothing about hypnotism. In order for a person to treat diseases on the system or plan I use, or rather in order for a person to be able to bring about a state or mental condition of belief that will result in the cure of disease, it is not necessary for him to understand anything about chemistry, anatomy, physiology, etiology, pathology, symptomatology, and diagnosis of disease; obstetrics and obstetrical operations, gynecology, major and minor surgery, physical diagnosis, diseases of the eye, ear, nose and throat, hygiene or medical jurisprudence. . . . A person without any education whatever can use my system of treatment just as effectively as I can, just so they understand how to bring into play the conscious real mental power resting in every intelligent person. It is the power of mind over matter, over the body. I do not treat persons for broken limbs or in cases of obstetrics, etc., that require surgical assistance."

The court does not doubt that the mind exercises a potent influence over the body, or that its state in many cases has materially to do with the condition of the body; nor does it doubt the efficacy of mental suggestion as a force or agency in leading nature to assert itself and effect a cure of many of the ills that flesh is heir to, or that suggestion may be often effectually aided by the employment on the patient of ineffective, but supposed effective, physical remedies, resembling in kind, but without his knowledge differing in character, from those that he has been accustomed to associate in his mind with and to see used in the cure of disease. For the purposes here, the philosophy of the defendant's treatment may be conceded, even to the full extent of the power he claimed for it, with no limitations on it save those he admitted, and yet the practice of it, in the court's opinion, falls within the inhibition of the law, its letter and purpose, unless the defendant first stands an examination on those branches of medical science or learning hereinbefore enumerated, and receives a certificate of proficiency therein—except major surgery, on which he is not required by the law to stand an examination if he states in writing before the examiners that he does not propose to employ that in his practice. (Political code, section 1626 et seq.; Criminal code, section 7564.)

The section of the criminal code cited is a part of the same act (Act Aug. 7, 1907, p. 591) as that incorporated in the sections of the political code cited. The act mentioned was passed after the decision of *Bragg vs. State*, 134 *Ala.* 165, and therefore with knowledge on the part of the legislature of such decision. Indeed the history of that legislation, as disclosed by the journals of the house and senate and the original bill, in which the act had its inception, will show that that decision gave rise to the legislation, which, while designed in its origin to destroy the effect of that decision, construing the then existing statutes as preventing the practicing of osteopathy without standing the examination then required, culminated in an amended bill, which became the statute here violated, and which, among other changes wrought in the law, broadened the language, as to the class of persons to whom it should be applicable, from those "practicing medicine in any of its branches or departments," the language of the statute construed in *Bragg vs. State*, as extending to osteopaths, to "all persons who treat or offer to treat diseases of human beings by any system of treatment whatsoever," the language of the present statute.

The clause is indeed comprehensive in its scope as to the class of persons on whom the law is to operate; nor is the court prepared to doubt the wisdom of the enactment, or the extensiveness of its intended application. The law leaves the practitioner free to adopt any system or kind of healing or cure that he may see fit, whatever it be, whether it be physical or mental, or both; it requires an examination on no system of therapeutics, and exacts no certificate of proficiency therein. What it does require is the standing of a

successful examination on those branches of medical learning —chemistry, anatomy, physiology, etiology, pathology, symptomatology, gynecology, diagnosis of disease, physical diagnosis, diseases of the ear, eye, nose and throat—a knowledge of which is deemed necessary to an intelligent understanding of the human body, its composition, organs and their functions, and to an ability to know when it is diseased and when it is not, and, when so, to be able properly to diagnose the trouble, a sine qua non to intelligent treatment of any sort; and a successful examination on hygiene, so that the practitioner will know how to prevent disease and may avoid, at least, the spread and communication to others of the diseases of his patients, or to them of other diseases; and a successful examination on medical jurisprudence, so that, when called to testify as to cases coming under his observation, he may be an intelligent witness, and as such be able to render aid to the courts in the investigation of truth and the administration of the law of the land; and a successful examination on obstetrics and obstetric operations, a knowledge of which, as practically admitted by the defendant himself, is indispensable to the ability to relieve suffering and save life in some of such cases, which are known to be frequent. He says, as hereinbefore quoted: "I do not treat persons for broken limbs, or in cases of obstetrics, etc., that require surgical assistance." Without the requisite learning in obstetrics how would he know a case that needed surgical assistance from one that did not, when sent for to give relief? And if he did not, what would become of his patient while he mistakenly applied his remedy, supposing it was not a case needing surgical assistance, when in fact it was? If the patient dies, is he to be excused because his remedy was a harmless one and did not hurt, when there has been a neglect to use what it is admitted by him would have been an effectual remedy, but which he did not use himself because of a want of knowledge as to how to use it, and did not call in another to use, who did know how, because of a like want of knowledge as to when the conditions were such as to render its use necessary? Without the ability to diagnose disease how would the defendant know a case of pregnancy in certain stages from a case of tumor of the womb? Will each pass away by means of mental suggestion?

These admissions of the defendant, in themselves, prove the wisdom of the law, and the necessity for requiring, as a protection to the people, that the professional healer or curer, who holds himself out to serve the public in that capacity, whatever be his system of treatment, have knowledge of those branches of learning named in the law, to the end that, while leaving him free to choose his own curative means, the public may be assured that the choice shall be made only after an intelligent understanding of the nature of the trouble he offers to treat, and of the human body to which he assumes to minister. The fact that the remedy he adopts is entirely harmless, and might be as effectively used by an uneducated as an educated person, does not, as seen, relieve the danger to the public resulting from entrusting their lives and health to a practitioner of cures who is ignorant of those things a knowledge of which science and experience have demonstrated to be highly useful and beneficial, if not necessary, in any system of treatment.

The law is a police regulation, designed for the protection of the public, and the court is clear in the opinion that the case made against the defendant falls within its terms and spirit, and that the statute is not unconstitutional, at least in so far as this case is concerned. Whether the statute is applicable to one who practices faith or mental cures, not for compensation, but gratuitously out of a sense of religious duty, or whether, if it was intended to so apply, it would be unconstitutional as against such persons because of an infringement of the bill of rights guaranteeing religious freedom, is a question the court need not and does not decide, and on which it expresses no opinion whatever, since that question was not before it.

The Supreme Court of Alabama says, *Ex parte Smith*, 63 *So. R.* 70: We are of the opinion that the agreed statement of facts brought the appellant within the influence of sections 1627 and 7564 of the code of 1907, and the certiorari to review the action of the Court of Appeals is denied.

The defendant also seeks a writ error, as provided by the act of 1911, authorizing a review by this court of the action of the Court of Appeals in upholding the constitutionality of the foregoing sections. We are of the opinion that the Court of Appeals correctly held that the statute was not violative of the federal or state constitutions, in so far as it was applicable to this defendant, who practiced his system of healing for a valuable reward.

Transportation of Sick Persons by Railway Companies

(Central of Georgia Railway Co. vs. Fleming (Ga.), 79 S. E. R. 369)

The Court of Appeals of Georgia reverses a judgment rendered for the plaintiff, who sued the railway company for damages for the alleged negligent homicide of her husband. The petition in substance alleged that he was suffering from appendicitis, and that it was necessary to take him to Atlanta for an operation. The negligence alleged against the defendant, in substance, was the refusal of the conductor to allow the sick man to be taken on the baggage-car as a passenger; also that the defendant well knew his condition, and that the failure of the defendant company to provide a safe, convenient and comfortable place for carrying him caused his appendix to burst, and this caused his death. It was alleged that there was no place or room for his cot in the smoking-car, where the conductor directed that he be taken, and that it was necessary to place his cot between two seats thrown together, which caused his body to be placed in a bow-like position, which was uncomfortable and dangerous and which caused the appendix to burst. The court thinks that a general demurrer to the petition should have been sustained and the petition dismissed.

The court holds that, while it is the duty of a carrier of passengers who accepts a sick passenger, to exercise due diligence in taking care of him, and to furnish all practical facilities for his safe and comfortable passage, consistent with the conduct of the carrier's business and the comfort and safety of other passengers, this measure of diligence does not require the carrier to place a sick passenger in its baggage car. It applies only to the transportation of passengers in passenger cars provided for that purpose; and refusal by a conductor of a passenger car to transport a sick passenger in a baggage car raises no liability on the part of the carrier.

The fact that conductors of passenger cars have permitted sick passengers to be placed in the baggage car will not vary the rule, and will not give a passenger the right to be transported in the baggage car. A baggage car is a place of danger, and, either sick or well, a passenger has no right to demand that the company shall transport him as a passenger in the baggage car.

A railroad company is not required by law to carry hospital cars, or cars especially for sick people to ride in. It is not required to convert a baggage car into a car especially for sick people. If it accepts a sick passenger, its duty is to place him in a passenger car in such a position as will insure, so far as possible, his safety and his comfort. Where the carrier does this, the measure of its duty has been fulfilled.

Liability for Performance of Operation on Child at Request of Adult Sister without Consent of Parents—Emergency Operations on Children

(Rishworth and wife vs. Moss and another (Tex.), 159 S. W. R. 122)

The Court of Civil Appeals of Texas reverses a judgment rendered for the defendants in this action brought by the plaintiffs to recover damages because, as they alleged, an operation was performed on their 11-year-old daughter for adenoids, which the plaintiffs had not requested and knew nothing of, until informed that their child had died on the operating-table. The evidence tended to show that the operation was undertaken at the instance and request of an adult sister of the child, and that she was present when chloroform was administered and the operation performed by the defend-

ants. The child never recovered consciousness after being anesthetized. The court bases its decision on the broad proposition that the mere fact that a child of tender years is taken to a surgeon's office by an elder sister, without the consent of the parents of the child, will not justify an operation on the child. It holds that it was clearly error to instruct the jury that if they believed from the evidence that the plaintiff's daughter took the child to Dr. Moss for the purpose of being operated on, and believed that the defendants in good faith performed the operation with ordinary care, their verdict must be for the defendants, and this, too, notwithstanding there was no consent from the parents that the operation should be performed.

The court says that the right of the child to bind the parent depends, not on any principle peculiar to the relationship of parent and child, but on principles appertaining to the law of agency. The relationship can be used only in drawing the inference of agency on slighter facts than as to other parties not so related. It follows that if the adult daughter in this instance had any authority to employ a physician to operate on her minor sister, she had that authority, not by reason of her relationship to the child or the parents, but by virtue of an agency, express or implied, from her parents, or at least one of them. Her authority must be viewed in the light of the rules and principles of the law of agency, rather than those rules connected with and arising out of domestic relations.

All of the cases proceed on the theory that before an operation can be lawfully performed, it must be preceded by the consent of the person capable of consent, or of the person empowered to consent to such operation on the person of one incapable of giving consent.

The law, as enunciated by the few courts which have passed thereon, is not so clear and satisfactory as it should be in cases of this character, but it seems to be reasonably established that a physician is liable for operating on a patient unless he obtains the consent of the patient, if competent, and, if not, of some one, who under the circumstances would be legally authorized to give the requisite consent.

Of course consent may be presumed from circumstances, without direct proof, but there must be consent in every case, except in an emergency when to delay to obtain consent would endanger the life or health of the patient.

A child of tender years being incapable of legally consenting to the administration of an anesthetic and a surgical operation, consent must be obtained from the person clothed with authority to consent by the law, which would be the parent or guardian, in case there be such person.

Under the circumstances of this case, the sister, whether adult or otherwise, would have no more authority by virtue of such relationship than would any other person, and it was fundamental error on the part of the court to instruct the jury that the presence of the elder sister, as a matter of law, justified the physicians in performing the operation. The parents were easily accessible by telephone or telegraph, and there was no emergency.

The question of consent of the parents was one of fact to be submitted to the jury, and the issue as to the skill and care that was exercised was one to be submitted in the alternative if consent was given. In the absence of consent to the operation the utmost skill and care in its performance would not justify the operation.

On a motion for rehearing, which it denies, the court says that it thinks it "clear, manifest to the understanding, plain, evident, obvious, appearing to the eye or mind," that it is error to instruct a jury that a minor child, 11 years of age, can be operated on by a surgeon, without the consent of the parents, if the child was taken to the surgeon's office by an adult sister. The charge did not place immunity for the physician on the ground of consent of the child itself, nor on the emergency of the occasion, but merely on the proposition that "the daughter of the plaintiffs took the child to Dr. Moss for the purpose of being operated on." The court holds that such an instruction is absolutely and fundamentally wrong.

The court does not wish it understood, however, that it has intimated an indorsement of the proposition that an infant of tender years is given by law any authority or power to judge of the necessity of having a dangerous operation performed on an infant in case of an emergency, without the consent of the parents, cannot be justified on the ground of the consent of such infant, but on the ground of the emergency. The physician in an emergency, in which the life of the infant is at stake, is justified in performing an operation without the consent of parent or guardian, not on the ground that the infant can contract for necessaries, but on the ground that the emergency exists, and the question of emergency would be one of fact to be considered by a jury.

If, however, it could be held that an infant could contract for a surgical operation, on the ground that it was necessary, it would always be a question of fact as to whether it was necessary, and that the parent or guardian had refused to have it done. The law does not give the girl under 15 the power to consent to the use of her person, and it would seem to be a dangerous proposition to authorize children of the age of the dead child to decide whether an operation is necessary, in defiance of the consent of its parents.

A married woman's power over her person cannot be classed with that of an infant of tender years over her person; but, even in the case of a married woman, it appears from the case of *State vs. Housekeeper*, 70 Md. 162, that there must be an emergency, and a failure on the part of the husband to respond to the call of the emergency.

Society Proceedings

CHICAGO NEUROLOGICAL SOCIETY AND THE BIOLOGICAL CLUB OF CHICAGO

Joint Meeting, held Dec. 18, 1913

(*Concluded from page 231*)

An Experimental Study of Nerve Regeneration

DR. S. WALTER RANSON: During the last eight years a number of investigators have used the Cajal stain, or some of its modifications, in the study of nerve tissue. These studies have brought to light a number of changes which occur in the last few millimeters of the proximal and distal stumps which had been overlooked by other methods of study. These changes occurred within a few days; in fact, within the first twenty-four or forty-eight hours after the operation. Within the first twenty-four hours the axon undergoes a swelling which is located perhaps 0.2 mm. from the cut surface, and the neural fibers of the axon become rearranged in a dense neurofibrillar reticulum. Four days after the operation in the last half millimeter of the proximal stump the following changes are seen: The medullated fibers show the myelin sheaths completely disintegrated, and the axons have their neurofibrils rearranged in a dense reticulum beneath the neurilemma. These changes are entirely transitory phenomena and disappear within fourteen days. Quite similar changes occur in the distal stump. The early phenomena in neither the proximal nor the distal stump have anything to do with the final regeneration of the nerve. By means of the Cajal method we are able to follow clearly the downgrowth of the new axon from the proximal stump.

The changes which lead to the final regeneration of the nerve may be summarized under four headings: (1) the formation of nucleated protoplasmic bands from the dead fibers in the distal portion; (2) the branching of the old axon in the proximal stump, with the formation in this way of a large number of new fibers; (3) the downgrowth of these new axons from the proximal stump through the scar, and (4) the growth of the new axons through the protoplasmic bands of the distal stump. In cross-sections it may often be seen that fifty new axons develop from one old one in the proximal stump. The part of the scar which immediately

underlies the distal stump is free from nerve-fibers excepting in one limited area. The new fibers in the distal stump are everywhere free from axons, excepting in that part which is overlaid by the innervated part of the scar. In these bands in this region one sees sharply defined axons. When the two ends of the nerve have been sutured at the operation, then large numbers of fibers enter the distal stump, and they can be seen in large numbers growing down to protoplasmic bands of the distal stump, so that one can say in summary that the view which was maintained by Waller more than fifty years ago as to nerve regeneration is correct, namely, that it takes place by a downgrowth of new axons from the proximal stump.

Degeneration and Regeneration of the Nervous Elements in Experimental Beriberi

DR. ELBERT CLARK: There are two types of beriberi—ship beriberi and atrophic beriberi, each of which has pronounced characteristics. In both types the disease runs a variable course, two patients rarely giving the same symptom-complex. In ship beriberi there is edema, especially of the feet and legs. The hands, arms and lower abdominal walls show some edema, but to a less extent. Hyperesthesia of the extremities is usually present, and complete anesthesia of the feet and lower portion of the legs is not rare in advanced cases. Tenderness and pain in the calf muscles is a very frequent symptom. Motor and sensory symptoms are present. Paralysis of the toes and fingers is frequently encountered. Cardiac disturbances are present, as a rule, with a rapid, somewhat irregular and weak pulse, easily accelerated by the slightest exertion. There may be a reduplication of the second pulmonic sound. In the atrophic variety there is no edema, but great emaciation. Other disturbances present resemble more or less ship beriberi. A great many cases run a less severe course and last many years. The greatest advance in the study of the disease has been along the line of etiology. A great many observers hold that it is a true infectious disease, but others believe that it results from faulty nutrition, and class it as a disease of faulty metabolism. Beriberi occurs most frequently among people whose principal diet is polished rice. Polished rice bears to red rice the same relation as white to graham flour.

According to the theory of auto-intoxication these neurilemma nuclei are capable of producing a new axis cylinder and new myelin sheath, which is capable of conducting sensation. Opponents to this theory hold that it merely serves as a scaffold. In either case the proliferation of nuclei in the neurilemma sheath is supposed to be absolutely necessary. In brief, we apparently have a regeneration of the axis cylinders without participation of the embryonic nerve-fibers and without any assistance from the nucleated neuron sheath. We have found that degeneration in the fowls in which beriberi was produced experimentally is brought about by prolonged feeding of polished rice, and regeneration is brought about by adding meats, grass, etc., to the diet. No evidence of degeneration was observed in the spinal cord.

DISCUSSION

DR. JUDSON HERRICK: One of the points brought out by Dr. Clark is the functional unity of a neuron. Correlated with that, however, is the problem as to how far the individual parts of the neuron are capable of autogenous activity, in either functional or regenerative fashion. That has been the great problem for many years, which now seems to be well under way to a solution so far as the fundamentals of it are concerned. The phenomena of regeneration, as we know them biologically in other than nerve tissues, have been also the subject of very extensive experiments, and the regenerative phenomena which belong to that class of activity which is called biologic regulation come out clearly, I think, in all of the features which have been described this evening. From the first the neuron which has been subjected to injury, either from a toxin or a lesion, appears to make an effort to restore itself to its normal form. There is a form regulation, and in the process of this restoration the neuron, as a whole, participates.

Of these phenomena of biologic regulation after injury there is in the simpler forms a process, first, of redifferentiation of the tissues adjacent to the injury. We are inclined commonly to think of regeneration of these nerve-fibers as following somewhat that same law. There is more or less of redifferentiation throughout the neurons, which may go beyond redifferentiation and result in ultimate destruction. The nuclei of the neurilemma are more resistant than the rest of the fibers. The question is, Are they capable of completing the process of redifferentiation without assistance, or are they not? It seems to me that the data brought forth this evening add the final proof necessary for the decision of that question. They are not capable of completing the process of redifferentiation to a fundamental form. They rarely are able in normal development to come to their perfect form without the cooperation of functional activity during the later stage of the process.

The most striking thing in connection with Dr. Clark's work has been his demonstration of the fact that the whole process may go on without the production of a local lesion. These considerations not only have a bearing on the repair of nerve-fibers which have been injured by toxins as distinguished from those produced by mechanical injuries, but also are related to the neuron, as a whole, and from both of these points of view it seems to me that the observations reported are of considerable importance.

DR. S. WALTER RANSON: I want to call attention to one point mentioned by Dr. Clark which is of especial interest, and that is the development of new axons without any proliferation of the neural cells. A good case of confirmatory evidence along the same line is that of an observer who has transplanted the spinal ganglion into a nutritive solution; the ganglion lived in the test-tube, and new fibers have grown out from the old fibers in this medium. These new axons which have grown out into the medium in the test-tube have, of course, been entirely free from contact with any proliferated neurilemma cells. The two pieces of evidence are along the same line.

WESTERN SURGICAL ASSOCIATION

Twenty-Third Annual Meeting, held at St. Louis, Dec. 19-20, 1913

(Continued from page 232)

Pericolic Membranes Resulting from Experimentally Produced Coprostasis

DR. JOSEPH RILUS EASTMAN, Indianapolis: I have experimentally produced pericolic membranes in rabbits by inducing a low-grade plastic peritonitis. The mild adhesive peritonitis occurs as the result of the plugging of the large intestine with its own contents. From my observations it appears that extensive membraniform adhesions may result from extreme coprostasis, and this is exactly as we should expect, for we know that incarceration of hernia and other forms of obstruction of the intestinal lumen, without visible lesion of the intestinal wall and without strangulation, lead to mild peritonitis, fusions and membraniform adhesions. Such pericolic membranes are not different in histology and origin from similar membranes about the uterus and uterine adnexa, all representing reactions of the peritoneum to irritation.

Significance of the Pericolic Membrane (Jackson's Veil)

DR. DANIEL N. EISENDRATH and DR. E. W. SCHNOOR, Chicago: From our observations during operations, from dissection of cadavers and finally from examination of ten fetuses, we believe that certain conclusions can be drawn. The parietocolic fold of Jonnesco is synonymous with the pericolic membrane. It is a reduplication or fold of peritoneum which is constantly found during fetal or postnatal life. There are two distinct types of pericolic membrane, (1) those which are innocent, and (2) those which may cause mechanical interference with the function of the colon. Each case must be judged on the operative findings, and one is not justified in saying that every pericolic membrane requires interference. The majority are perfect, normal structures. Our examinations of fetal cadavers confirm those of Gray and Anderson,

that there is a left parietocolic fold which corresponds in every detail to the same structure on the right side. It is a constant finding in the fetus, and no doubt search for it in the future during operations on the left side of the abdomen will confirm these fetal observations.

DR. ARTHUR N. COLLINS, Duluth, Minn.: I have found a vascular film or veil of greater or less extent in at least 75 or 80 per cent. of cases. In my experience, covering twenty-five or thirty cases, the most frequent location of the veil was on the ascending colon, and next on the cecum, the hepatic flexure coming third. I believe that the membranous veil is intimately concerned in cases of acute or chronic constipation or stasis in the large bowel. By treating the membrane surgically, I have relieved the constipation more often than the pain and tenderness.

DISCUSSION

DR. L. A. GREENSFELDER, Chicago: In sixteen instances I found a Jackson's membrane which was not pathologic. I believe that the reason the membrane is sometimes not observed in children is that it is a very fine, frail, web-like structure which is apt to be overlooked unless one looks for it accurately and carefully.

DR. LEONARD FREEMAN, Denver: I found the membrane in twenty-four cases. I am inclined to agree with Dr. Eisendrath that it is more or less of a normal structure, at least in the particular cases in which I have had an opportunity to notice it. In but two instances that I saw was I at all convinced that it produced any pathologic disturbance to the bowels. In one of these cases the obstruction was very marked.

DR. MILES F. PORTER, Fort Wayne, Ind.: The mere presence of what seems to be a rather unusual fold in the peritoneal cavity does not necessarily call for an operation of one sort or another on that fold. It does not seem to me that from a practical point of view it is important to determine whether these folds are of embryonic or of pathologic origin. It is important to determine whether or not they are doing any harm. I have seen a number of these cases in which the bands have been released and the obstruction has been relieved, but the patients have been made no better.

DR. VAN BUREN KNOTT, Sioux City, Iowa: More harm than good results from injudicious attempts at handling bands supposed to be responsible for symptoms. We should have greater familiarity with this subject in order to know in just what cases we should attempt to liberate or remove the membrane.

DR. THOMAS C. WITHERSPOON, Butte, Mont.: One error we frequently make is to attribute too much to the bands. Undoubtedly children have these bands, but they do not suffer. They are active, they are going about, there is no stasis, and the intensification of the mechanical obstruction by the bands that they experience later as they go into their studies or offices, where their habits are sedentary, is due to the occurrence of cesspooling in the bowel, and then stasis begins.

DR. BYRON B. DAVIS, Omaha: I think that the Jackson membrane is a normal one and is present in a large percentage of cases; that in most cases when it is normally formed it is really a conservative anatomic structure rather than a pathologic one, and that in many instances it serves to fix the ascending colon and to prevent a prolapse which would occur in the absence of this membrane. The causes of any pathologic condition in this location are very numerous. There may be chronic constipation, or an acute colitis, appendicitis with more or less involvement of the peritoneum, or anything causing a peritoneal irritation or inflammation may cause enough increased vascularization and thickening of this membrane, so that it later would contract in such a manner as to bind down the colon to it, as I have found in a few cases.

DR. A. A. LAW, Minneapolis: We have found this membrane in fifty cases. All of them have been studied fluoroscopically with colonic injection of bismuth, and also by means of the stereoscope. The findings are practically of no value, except as they show whether or not obstruction is present in the large bowel. The large bowel takes so many positions, according to the posture of the patient, that it is of little value. Every case of ours had cecal ptosis. The cecum was in the pelvis, or went down there when the membrane was released.

DR. WILLIAM T. REYNOLDS, Kansas City, Mo.: I have had eleven of these cases, the youngest patient being 6 months old. In no instance was there an absence of this membrane on the right side of the colon high up, and in no instance was it absent on the terminal ileum. In three cases it was present on the opposite side.

DR. A. A. KERR, Salt Lake City.: The cases which I have seen have been associated with intestinal stasis or chronic appendicitis.

DR. JABEZ N. JACKSON, Kansas City, Mo.: If one finds a loose, vascularized veil floating over the colon, that has no bands of fibrous tissue in it definitely interfering with the capacity of the intestine somewhere, he should dismiss it from his mind. When this membrane interferes mechanically with the capacity of the intestine, it should be divided or stripped off, and this should depend on the individual case. In some instances a mere slit of an incision is all that is necessary. Sometimes the attachments are so multiple that no simple line of incision will do it, and we have practically to strip the restricting membrane off.

DR. M. L. HARRIS, Chicago: After these membranes are dealt with, the case becomes a medical one and unless properly treated these membranes will recur, if due to a pathologic state in the intestinal wall or to low forms of infection. We can produce these conditions in animals experimentally. In my opinion this low infection from intestinal stasis is the underlying factor in this condition.

Cholecystitis: Factors that Control Results of Operation

DR. CHARLES H. MAYO, Rochester, Minn.: The results of operation for cholecystitis are influenced by many conditions besides those in the gall-bladder itself. Among these are a number of infections within the liver and bile-ducts causing changes in the balance of the acidity of the stomach and of the alkalinity of the duodenum, the presence of pyloric spasm and changes in the pancreas. Special attention is called to a group of lymph-nodes extending along the common and hepatic ducts and on the cystic duct. Any case of cholecystitis with sufficient infection to produce symptoms will necessarily affect these lymph-nodes. In the majority of cases, if these lymph-nodes are much enlarged, one will find a lymphedema of the head of the pancreas as well as the infection of the gall-bladder. An exception is the general swelling of the mesenteric nodes through malignancy or gross abdominal infection. The majority of cases of cholecystitis are undoubtedly best relieved by cholecystectomy.

Repair of the Common Duct by Means of Transplanted Fascia

DR. CARL B. DAVIS and DR. DEAN D. LEWIS, Chicago: We have transplanted free fascia from the abdominal wall to bridge gaps in the common duct and to patch partially severed ducts. In all cases the gastrohepatic omentum was destroyed so far as any support was given to the choledochus. In one series of cases the common duct was cut across and the ends allowed to retract until they were from ½ to 1 inch apart. A strip of fascia was removed from over the rectus muscle, passed beneath the ends of the severed duct and fastened by silk sutures to the proximal portion of the common duct and passed well up on the cystic and hepatic ducts. The repair at the distal end was done by fixing the fascia to the duodenum behind the entrance of the distal end of the duct into the intestine. The fascia was then folded over to form a tube and two continuous sutures used to make it as watertight as possible; over this the omentum was wrapped as an extra precaution.

In the second series of cases the common duct was cut partially across and then slit lengthwise for half an inch. A strip of abdominal fascia was placed around the duct and the abdomen closed without drainage. In eleven cases it was necessary to close the abdomen without drainage, as the

animals pulled out tubes and gauze in the first twenty-four hours. In some cases we tried to divert the bile from the field of repair by draining the gall-bladder, but lost the animals by extravasation of bile into the abdominal cavity after the tubes had been removed by the dogs. Whenever a leak occurred in the region of the flap, the experiment failed. This occurred in three cases—two in the first series and one in which the duct was merely slit up. Five dogs were lost from infection of the abduct wall.

Three dogs lived two months in the first series. Two of them when killed showed a patent common duct and stools of normal color. The third dog, which lived sixty-five days, had a constriction at the duodenal end. The bile ducts were distended to an enormous degree. The fascia was alive and as resistant as the normal tissues. In one animal in which the bile-duct had been slit longitudinally, the fascia was sutured too tight at the duodenal end, resulting in marked distention of the gall-tracts. In this case the fascia was alive and strong enough to retain the bile.

(To be continued)

SOUTHERN SURGICAL ASSOCIATION

Twenty-Sixth Annual Meeting, held at Atlanta, Ga., Dec. 16-18, 1913

(Continued from page 233)

Elements Frequently Overlooked in the Treatment of Exophthalmic Goiter

DR. A. J. OCHSNER, Chicago: The following features have a distinct bearing on the surgical treatment of exophthalmic goiter: the physiologic hyperthyroidism present during pregnancy, puberty, etc.; that resulting when persons suffering from goiter living in goiter districts change their residence to other regions; disturbance of the balance between production and consumption of thyroid secretion by some severe sudden physical mental or emotional strain, in a class of patients in whom this balance is usually maintained. Planning the operation in relation to the margin of safety in the individual case; bearing in mind the periodicity of exacerbation in hyperthyroidism and its relation to the proper time of operation; the harmfulness of undue operative traumatism; the relation between absorption of wound secretion and postoperative hyperthyroidism, and the uselessness and harmfulness of heart stimulants, thyroid extract and iodin.

DISCUSSION

DR. CHARLES H. MAYO, Rochester, Minn.: It is difficult to control patients after operations for goiter, and sometimes I think it is about as easy to operate again as to try to manage them after operation, because so many of them disregard the rules which we lay down for their after-care. I have seen many cases that could not be improved by operation.

Accidental Injury to the Vena Cava during Nephrectomy

DR. LEGRAND GUERRY, Columbia, S. C., reported three cases in which he had injured the vena cava during nephrectomy, in two the accident being unavoidable. In one case the hemorrhage from the torn vena cava was successfully controlled by gauze tamponade. In all cases the clamp alone was used to close the injured vessel wall. The clamp was unlocked on the seventh day and removed on the eighth day.

DISCUSSION

DR. GUY LEROY HUNNER, Baltimore: I have never injured the renal vein in kidney surgery. I have on one or two occasions had hemorrhage from slipping of the renal artery or vein, and I wish to emphasize a point in dealing with such hemorrhages in a deep hole, especially if the kidney has not yet been removed, namely, that we do not use clamps indiscriminately. The simplest and best method in dealing with these blind hemorrhages is the use of the index-finger or better the thumb and finger, if the bleeding is in such a position that we can do that. Ordinarily, by catching the bleeding point immediately, by thumb and finger pressure we can use gauze points and clean out the wound and have perfect control of the field for clamping or suturing, whichever way seems to be the best for dealing with the bleeding point. Some of these injuries occur from the blind use of forceps in a place where nothing can be seen and the real bleeding point is obscured by the fresh bleeding.

DR. HUBERT A. ROYSTER, Raleigh, N. C.: While doing a nephrectomy through an anterior incision, in lifting up the kidney, I tore the vena cava. With clamps it was held until I put on a double mattress suture and controlled it, and then grasped the renal vein and cared for it. This accident is less liable to happen during intracapsular nephrectomy than if one goes to the outside, because we cannot go quite so far down when we cut through the capsule and reflect it.

DR. I. S. STONE, Washington, D. C.: I have had two accidents, one to the axillary vein and one to the renal vein, both having been partially torn. In one case I attempted to suture the vena cava by drawing the vein over and covering in the defect, but I was afraid there would be continued hemorrhage. I found it comparatively easy, after the sutures were drawn together, by diminishing the size of the vessel one-half, to put a ligature around the whole mass, which entirely occluded it, brought all the parts together, and stopped the hemorrhage. Both patients recovered without the least difficulty.

DR. GORDON K. DICKINSON, Jersey City, N. J.: In removing a hypernephroma I went into the vena cava, but found that very little finger-pressure controlled it.

DR. J. M. T. FINNEY, Baltimore: When I was one of the house officers in the Massachusetts General Hospital, I assisted Dr. Cabot in a case in which the patient had been operated on previously for fibroid. At that operation, which was done by another operator, one of the ureters had been cut, leaving a urinary fistula, and for the relief of the fistula the second operation was being performed by Dr. Cabot. It developed subsequently at the necropsy that this patient had an abnormally short renal vein, and when the kidney was ligated the ligature had included the lateral wall of the vena cava. When the pedicle was cut, the wall being inverted, there was within a few moments after the kidney had been removed a gush of blood such as I had never seen before, have never seen since, and hope never to see again. Dr. Cabot instantly attempted to pick up the bleeding point with a pair of forceps, and succeeded after a little while; and after cleaning out the wound found he had clamped the full caliber of the vena cava. At that time, which was many years ago, it was deemed best not to attempt to do more than leave on the clamp. The patient had lost so much blood that she died in a very few minutes. I mention this case as an illustration of the fact that this accident is really a serious one.

DR. FRANCIS REDER, St. Louis: I had the misfortune to tear the vena cava, but it taught me a lesson. In operating now, as soon as I get down to dangerous territory, I introduce a ligature, double thread it with needle, one in the lower pole of the kidney and one in the upper pole; I clamp my way along, keep on sewing, and with gentle traction on the thread I know when I am down near the vena cava; but by applying delicate pointed clamps, with double-threaded ligature, throwing the tissues over the clamp, I can finish my operation without ligating separately the renal veins, and with very little loss of blood.

DR. FRANCIS R. HAGNER, Baltimore: I have had two cases in which the vein close to the vena cava slipped out of the forceps. The first thing is to get the kidney out as soon as possible; the operator can see what he is doing to better advantage, and can better apply the clamps. Venous bleeding is difficult to control, but there is very little or no trouble in controlling arterial bleeding.

Ultimate Results in Eight Cases of Colectomy for Fecal Stasis

DR. JOHN G. CLARK, Philadelphia, reported eight cases, five patients relieved of constipation; three cases were a distinct success; one patient died from postoperative adhesions; one was reoperated on subsequently for the relief of a blind pouch, and another will probably have to be operated on for a

similar condition. This operation is not an operation for constipation. It is only an operation for segmental obstruction.

Artificial Vagina by Intestinal Transplantation

DR. H. J. BOLDT, New York: I have had two cases of formation of an artificial vagina by intestinal transplantation. It is the only method that has given satisfactory results. Other methods I have used were eventually always failures. In both of these cases there was a complete congenital absence of the vagina, and in each case the ileum was used.

DISCUSSION

DR. THOMAS S. CULLEN, Baltimore: I have had several cases in which the pelvic organs were present but the vagina had not been opened, and it was necessary to go up and find the vaginal mucosa and attach it to the skin. These cases have been in girls between 15 and 18 years of age. In one case in which the patient had no vagina at all, I attempted to make an opening between the rectum and bladder. With one finger in the rectum and with artery forceps in the bladder I worked through the septum from above. I felt a mass on the right side and came to the conclusion that it was the uterus. There was an accumulation there. Three or four inches in I felt that this was hard. I immediately opened the abdomen and found that the mass in the right side was a unilateral kidney. The tube and ovary were present on the right side. The tube was visible. The fimbriated end was sticking out through the hernial ring; the ovary was covered over by peritoneum and the round ligament came down and formed a loop and went back. On the opposite side there was nothing to be seen, but outside the pelvis I could feel the ovary and tube.

Adenomyoma of the Rectovaginal Septum

DR. THOMAS S. CULLEN, Baltimore: These growths have the same histologic picture as adenomyoma of the uterus. They consist of typical uterine glands lying in their characteristic stroma and surrounded by diffuse myomatous tissue. They evidently start in the lower part of the uterus and then spread out in the rectovaginal septum. These growths, which in the beginning may be readily shelled out, later become so fixed to the rectum that it is necessary to take away a portion of the bowel with the tumor.

These growths can easily be differentiated clinically from cancer of the rectum. Adenomyomas of the rectovaginal septum invade the bowel from without. They may extend into and narrow the bowel lumen, but the overlying rectal mucosa is still intact. The only rectal symptoms that one may expect are those due to partial constriction of the bowel. Cancer of the bowel, on the other hand, starts in the mucosa and extends outward. It is usually accompanied by hemorrhage from the bowel and later by the fetid discharge due to breaking down of the cancerous tissue. With adenomyoma of the rectovaginal septum there is usually no bleeding. On rectoscopic examination in the one case the cancerous area can readily be seen, in the other while the bowel is narrowed the mucosa is nevertheless everywhere intact.

While these growths are histologically benign and while they naturally never give rise to metastasis, nevertheless, if portions of the growth be left they continue to grow as a result of the adhesions, and alarming and in fact fatal obstructive symptoms may develop.

Use of the Paquelin Cautery in Cervicitis, with Special Reference to Its Value in Sterility

DR. GUY L. HUNNER, Baltimore: I now have a series of 241 cases treated with the cautery with practically universal success. I wish to warn against the use of the cautery in the acute or subacute stages of gonorrhea, and also against losing valuable time by using the cautery in an early case of epithelioma of the cervix. Any suspicious case that cannot be diagnosed grossly should have a specimen removed for microscopic examination. In the chronic inflammatory cases in which a portion of the leukorrhea comes from a metritis or endometritis, the cervical treatment should cease when the cervix has a normal appearance and the cautery fails to empty more retention glands, although there will still persist some leukorrhea from within the uterus. Other pathologic conditions for which the cautery has been found useful are urethral caruncle, polypus of the cervix, fibroma of the vaginal wall, retention cysts and abscesses of Skene's and Bartholin's glands.

In sterility cases, fourteen patients became pregnant after the use of the cautery. Some of these patients had not been married long enough to be classed as sterile; others had borne children and were probably only temporarily sterile, and others had reposition of the pelvic organs with placement of a pessary treatment that might have resulted in pregnancy without the use of the cautery. It is more than probable that in six the pregnancy followed as a consequence of using the cautery. Eight cases were failures.

DISCUSSION

DR. HENRY T. BYFORD, Chicago: With reference to the use of the Paquelin cautery in cases of sterility, it seems to me it is irrational in that we substitute a pathologic cervix for a normal one in which carcinoma is likely to occur. If we dilate the cervix and keep it widely dilated we give the patient a chance to become pregnant.

DR. HERMAN J. BOLDT, New York: What is the risk of getting subsequent atresia of the cervical canal from the use of the Paquelin cautery?

DR. GEORGE H. NOBLE, Atlanta, Ga.: Instead of using the cautery in these cases I make six incisions, on either side, two anteriorly and two posteriorly. This gives me ¼ inch between the incisions cutting clear through the mucous membrane and up to the internal os, pushing it well up into the internal os. The effect of the cautery, I am satisfied, is deeper than the cut of the knife. The result is, that with healthy mucous membrane, stenosis does not result. In cauterizing, the mucous membrane is destroyed, but there is a healthy strip left between each incision. The effect of the heat traverses the area underneath and either sterilizes the glands or destroys them.

DR. I. S. STONE, Washington, D. C.: If we are going to take three or five months to cure a patient of chronic cervical endometritis, some other method of treatment should be adopted. If we wish to destroy the glands, why not split the cervix wide open and cut away the glands? Let us destroy the cervical tissue at once, leave a strip of undenuded tissue which has been curetted, bring back the cervix and sew it up. If that is done, the cervix will be as elastic as any cervix after a trachelorrhaphy. It will be free from cicatricial tissue which would interfere with pregnancy or delivery.

DR. HENRY O. MARCY, Boston: The Paquelin cautery has its place in the treatment of these conditions, and I have used it with excellent results.

DR. GUY L. HUNNER, Baltimore: The possibility of stenosis after the use of the cautery is more imaginary than real. At first I thought that it would occur, but experience shows that it does not.

Treatment of Vesical Fistulas at the Vaginal Vault Following Surgical Operations

DR. HOWARD A. KELLY, Baltimore: I have discovered an excellent plan of operating in cases which obviates all difficulties and dangers, simplifies the treatment and, I believe, gives a maximum certainty of cure. The patient lies in the lithotomy posture, with the posterior vaginal wall well retracted. If necessary a paravaginal incision is made to expose the vault and the fistula. When the operator cuts transversely just above or through the scar tissue and carefully opens the peritoneal cavity continuing the incision from side to side until it is as big as in a vaginal hysterectomy. This must be done without injuring the bladder or affecting the fistulous tract in any way. A good plan now is to incise the tissues longitudinally through the fistula down to the bladder, which is dissected away from the vagina and sewed up separately, while the vagina is united over the vesical wound, if the operator prefers it at a right angle to it so that the two lines of suturing cross each other. I usually

provide for drainage. I have in some cases left a considerable part of the vesical peritoneum in the vagina, forming a new vaginal vault. A mushroom catheter is put into the bladder for a few days to keep it at rest during the first part of the healing process, and the patient remains in bed from eight to twelve days, the peritoneal drain being removed in from four to six days.

Resection of the Rectum for Cancer with Preservation of the Sphincter

DR. CHARLES H. MAYO, Rochester, Minn.: Extirpation of the cecum and ascending colon for cancer has given a high percentage of cures because an anastomosis of the ileum into the colon was an ideal enterostomy for delivering semiliquids. The two-stage Mikulicz method is one of the safest known, although convalescence is protracted. A permanent colostomy, though abhorrent to all patients, undoubtedly gives a higher percentage of cures than do methods which restore function. I advise thorough abdominal exploration; a temporary or permanent colostomy in the majority of cases; increasing the lumen of the anterior and, if necessary, the posterior portion of the bowel to double their normal diameter at the point of union; rotation of the anterior peritoneum-covered bowel to secure rapid healing posteriorly, and practically free peritoneal surface anteriorly; stretching or division of the sphincter to secure drainage of the bowel; closure of the colostomy to secure function, and if there be no metastasis and the colostomy is to be permanent, that the rectum be removed at a second operation.

Surgery of the Ileocecal Coil

DR. FRANCIS REDER, St. Louis: The great danger following a successful resection of the ileocecal coil with immediate restitution of the canal lies in the secondary changes which have taken place in the intestinal walls induced by the disease for which the operation was undertaken. The complete atony of the bowel so often present activates various infective processes generated by the pent-up bacteria. Whenever the virulent contents of the bowel become stagnant at the site of suture, the suture frequently yields and a fatal peritonitis usually results. One of my patients, whose case bore the gravest aspect, developed a fecal fistula on the fifth day after operation and recovered. This happy termination occurred after a patient had died by the ideal method on the ninth day following the operation. It demonstrated to me the fact that a vent became almost a necessary adjunct to this operative procedure. In my last two cases I have successfully employed a technic that carried with it an artificial anus, but in a modified form. The advantage of this technic is a vent that will not require risky operative measures for its successful closure. In the ileocecal resections there have been three deaths following the ideal method, and one in which an artificial anus was made. There have been two recoveries from the ideal method, one following an artificial anus, and two by my method. One patient developed a fecal fistula five days after operation.

Cyst of the Appendix

DR. RUDOLPH MATAS, New Orleans: I have a specimen of a rare, retroperitoneal, multilocular, retrocecal cyst of the appendix of large size, weighing 1,582 gm., (over 52.7 oz.) which contained a gelatinous, coagulable, myxoid fluid of variable color and consistency. It measured 47.5 cm. in circumference around its longest diameter; 17.5 cm. in breadth, and 10 cm. in thickness (18¾, 7 and 4 inches, respectively), with a perimeter of 56 cm. (22 inches). It is not a retention cyst or hydrops, as the appendix is quite distinct and separate, though attached to the mass. Its origin is doubtful and obscure. It is evidently a connective-tissue sac with multiple compartments lined with endothelium, probably an outgrowth of some embryologic relic connected with the mesentery, possibly a development of an original lymphangioma cavernosum of the mesentery. The mass was removed from a young man, aged 25 years, who has recovered uneventfully after the intervention.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

January, VII, No. 1, pp. 1-96

1 *Leukocyte Counts in Pneumonia and Cerebrospinal Meningitis. J. H. Hess, Chicago.
2 *Disseminated Miliary Tuberculosis of Lungs and Skin. W. P. Northrup, New York.
3 *Tardy Syphilis. H. H. Yerington and F. M. Holsclaw, San Francisco.
4 *Treatment of Rheumatic Endocarditis. W. P. Lucas, San Francisco, and M. H. Wentworth, Boston.
5 *Neurotic Vomiting in Infant. W. B. McClure, Baltimore.

1. **Leukocytes in Meningitis.**—All of Hess' cases of epidemic meningitis were associated with a marked leukocytosis. The neutrophils were always the predominating cell before the administration of serum. There was a moderate but absolute lymphocytosis in all cases, most marked during convalescence, except in the one infected with measles. It was most marked in the fatal case. There was always an approximation and in some a crossing of the neutrophil and lymphocyte curves during convalescence. Eosinophils disappear absolutely very early in the infection and do not recur until convalescence has set in. With recrudescence and the reappearance of organisms in the spinal fluid, they again disappear. Although there may be a distinct increase occasionally, at no time in Hess' series of cases was there a marked eosinophilia. Their presence and reappearance in his cases was always associated with signs of good omen. Leukocytosis in pneumonia as in other infections is dependent on two great factors: first, the reaction on the part of the organism, and second, the severity of the infection. This is peculiarly true of children whose course in the typical types is associated with a lower mortality than in adults while in the atypical, secondary types, we see the highest mortality of any age except that of senility. Generally speaking, a high count indicates a severe infection in an individual of strong powers, a moderate increase indicates either a slight infection with good resistance, or a severe type with an inadequate reaction. A low count suggests either a slight infection or an overpowering influence. It is impossible to make a reliable prognosis in pneumonia from the leukocyte count alone; however, when studied in relation to the clinical picture, the leukocyte count becomes of great prognostic significance. Primary pneumonias of infancy are usually of the lobar type. Bronchopneumonias are usually either secondary pneumonias or are seen in infants with low vitality. This assertion is based on the physical findings, clinical course and blood-findings. Young infants react to infections with a high neutrophil count, the same as seen in older children. The usual blood-picture in pneumococcus infections is that of a high neutrophil count with a moderate lymphocytosis before the crisis. A deviation from this picture should lead one to suspect lues, tuberculosis, typhoid or influenzal or other infections, or the presence of a rachitis or other complication. Excessively high counts are apparently more prone to the development of empyema and other complications, although it is impossible to say whether or not the hyperleukocytosis is not the result of an already infected pleura, etc., not demonstrable clinically. In several instances the toxic symptoms associated with these high counts have led us to do spinal puncture with negative findings. The neutrophil and lymphocyte curves approximate and occasionally cross each other during convalescence. There is a rapid fall in the neutrophils after the crisis. Pseudocrisis is associated with little or no reduction in the total count. A slow fall in the leukocytes with continued high fever indicates either delayed resolution or complications. This is commonly seen in the secondary pneumonias. Sudden increases in the total and neutrophil counts during convalescence should lead to the suspicion of complications, as should a tendency to remain high. In secondary pneumonias the count varies with the associated complications. Frequently there is a high lymphocyte count.

Eosinophilia: Eosinophils practically disappear during the height of the disease and usually reappear just before or fol-

lowing the crisis or with the beginning of lysis. Their recurrence can usually be considered a good sign. Disappearance of eosinophils does not depend on the presence or absence of a leukocytosis. When they have disappeared, however, the absolute decrease tends to remain until the white count nears the normal. They rarely reach an absolute count much above the normal. Their occurrence usually indicates that the infection has passed its acme, and is therefore of practical value for prognosis. Their disappearance may be retarded by outside factors, as the presence of ascaris lumbricoides in the intestinal tract and repeated pneumococcus infections. Their disappearance following their return with beginning convalescence should lead to the suspicion of beginning complications.

2. **Disseminated Miliary Tuberculosis of Lungs and Skin.**—Northrup submits two helps to the diagnosis in the very young of miliary tuberculosis—one, of the lungs—the Roentgen-ray; the other of the skin—the eruption. In six cases of infants and young children suspected of disseminated miliary tuberculosis of the lungs, the Roentgen-ray has cooperated with other tests to decide the diagnosis. Two of the cases have been confirmed by necropsy, one has been corroborated by inoculation into the guinea-pig, one was confirmed by examination of an excised gland; others by finding bacilli in the throat swabs, etc. The character of the eruption is papulovesicular, perhaps more vesicular from the first. On the neck, in one case, the vesicles were more like sudamina, a little larger, though not as large as the vesicle of chicken-pox. They were thickly clustered in the neck. Later there developed a hemorrhagic zone about the vesicle and a subsequent drying and crusting in the middle of the lesion. The completed individual lesion was about 2 mm. in diameter. The rash was on all skin surfaces, including soles, palms and scalp, with more about the mouth, anus and buttocks.

All the patients came into the hospital with the evidence in favor of acute pneumonia, the chart bearing out the general suggestion and appearance of the disease. The roentgenogram was really the first means of positive diagnosis, being subsequently confirmed by finding tubercle bacilli. The cases presented to the experienced observer the mental picture of pneumonia, but the physical signs of bronchitis.

3. **Tardy Syphilis.**—The authors believe without question that in many cases of latent syphilis salvarsan produces a beneficial tonic effect. Whether this gain in weight and general condition in infancy is due to this effect or not, they do not know. No doubt the effect is mainly due to the action of the drug on the luetic virus. As to parallel results with mercurial inunctions, they have not obtained as rapid a gain, nor has the Wassermann reaction become negative as quickly as in our salvarsan cases. They have studied 150 cases and injected over seventy children with salvarsan.

4. **Treatment of Rheumatic Endocarditis.**—The most important part of the treatment of patients coming in with their first attack, Lucas and Wentworth believe to be prolonged rest. Rest offers the best hope of complete cure if carried out over a long enough period. The hope for permanently curing endocarditis after the first involvement, lessens almost in geometrical progression with each succeeding attack. This rest can be obtained in two different ways, either in a hospital, or, if the home permits, it can with careful supervision be carried out there. There are very few hospitals to-day, the authors claim, that are alive to the importance of long continued rest for these early cases of rheumatic fever, or that are willing to keep such cases in their hospital beds long enough really to ensure a permanent cure of the endocardium. If not properly treated during the first attack the infection is likely never to be entirely cured. The patient is too often discharged with the infection in a quiescent stage, simply to flare up again under the slightest provocation during a recurrent attack. Hospital treatment to be successful in these cases must be continued over months rather than weeks; the patients being kept in bed and at rest for at least six weeks after all signs of infection, such as temperature, have passed, and then there should be a very gradual increase of activities, the child being under constant supervision throughout the convalescent period. The home treatment of such cases will depend almost entirely on the cooperation of the family and the supervision which the hospital offers for follow-up work—a combination which is most difficult. But if this can be carried out satisfactorily, it offers several advantages. In all of these cases medical treatment plays a minor part as compared with rest. As in tuberculosis fresh air plays the most important part in a successful treatment, so in these cardiac conditions rest is the key-note for successful treatment. We must have fresh air and good food combined with rest, as well as a calm, cheerful mind.

The medicinal treatment is symptomatic. In the primary attacks, cardiac stimulants are practically never needed. Salicylates, usually in the form of acetyl-salicylic acid (aspirin) with sodium bicarbonate, are of considerable value during the acute febrile stage, and the use of salicylates from time to time may have a preventive function, especially when the patients are exposed to any infection or have been exposed to sudden changes of weather. The removal of any infection should be carefully looked into. The diet, with special attention to constipation, should be carefully supervised. In cases which present themselves with well developed cardiac lesions, but with, as yet, no failure of compensation, the same observation obtains and the daily life is so regulated that the least strain possible is put on the heart. The diet is regulated; thorough mastication is urged, the bowels kept moving regularly. The patient is advised to report on the first signs of fatigue, pain, loss of appetite or dyspnea. When a patient comes with broken compensation the *sine qua non* is rest.

The plan which Lucas and Wentworth suggest for a study of cardiac cases among children includes a general survey of the actual number of cardiac patients attending the hospitals; an estimate of the number of children with the first attack who should be in some institution, as a cardiac sanatorium, for a shorter or a longer time; an estimation of how many of these cardiac cases could be cared for at home, if they were properly supervised and followed up; an estimate of the number of practically incurable cases and cardiac cripples should be made, and some means of reaching these children educationally, vocationally and recreatively should be attempted.

5. **Neurotic Vomiting.**—The essential features of the case cited by McClure were: The sudden onset of vomiting at the age of 3½ months, with retention of breast-milk while artificial food was vomited. The persistence of the vomiting despite the great variety of liquid foods given, with cure resulting promptly on giving semi-solid food. The slow, forceless and apparently willful nature of the vomiting without swallowing. The neurotic disposition of the child, as evidenced by the development of a head-rolling habit. The usual causes of persistent vomiting having been satisfactorily excluded, McClure was led to explain the vomiting as a neurotic manifestation.

American Journal of Roentgenology, Detroit, Mich.

December, I, No. 2, pp. 49-113

6 Technic for Measuring Quality and Quantity of Roentgen Ray; Value of Platino-Cyanid of Barium Pastilles. G. M. MacKee and J. Remer, New York.
7 *Technic in Roentgenotherapy with Special Reference to Deep Therapy as Practiced at Freiburg by Kronig and Gauss. A. F. Holding, Albany, N. Y.
8 *Roentgenotherapy of Gynecologic Conditions. G. E. Pfahler, Philadelphia.
9 *Present Status of Roentgenotherapy of Enlarged Thymus. S. Lange, Cincinnati, Ohio.
10 Device for Using Constant Stream of Water in Water-Cooled Tube. G. E. Pfahler, Philadelphia.
11 *Fracture of Skull with Air in Ventricles. W. H. Stewart, New York.

7. **Technic in Roentgenotherapy.**—The fractional, unmeasured roentgenotherapy technic is unsparingly condemned by Holding. He states that the only way to safeguard patients is to insist that the technic must be followed out carefully and that no area of skin shall be given more than an erythema dose unfiltered, and not more than 1½ times the erythema dose with the rays filtered through at least 3 mm. of aluminum. He believes it would also be wise to dehematise the skin by compression during the treatment.

8 and 9. Abstracted in THE JOURNAL, November 15, p. 1842.

11. Abstracted in THE JOURNAL, November 8, p. 1743.

American Journal of Tropical Diseases and Preventive Medicine, New Orleans

December 1, No. 6, pp. 425-488

12 Effects of Certain Drugs on Pathogenic Entamebae of Human Intestines. W. M. James, Ancon, C. Z.
13 *Way to Vaccinate. I. Dyer, New Orleans.
14 Cestode Monstrosities. H. McCulloch, Washington, D. C.
15 Hygiene in Philippine Schools. A. J. McLaughlin, Washington, D. C.
16 Life-History of Dermatobia Hominis. F. Knab, Washington, D. C.

13. **Way to Vaccinate.**—The vaccination process should stop at the vesicle and in order to make sure of this, Dyer says, the physician should see to it that the eruption stops with the vesicle, by purposefully breaking the vesicle and treating the site antiseptically. This practice, Dyer has followed for nearly twenty years, with a happy satisfaction in the knowledge that the proverbial "sore arm" is prevented and that the scar of vaccinia is either avoided, or is reduced to a minimum.

The way to vaccinate should be based on the following technic: Clean the area thoroughly with soap and water; follow with alcohol sponging. Be sure the alcohol dries off well, so as to leave the area aseptic but not antiseptic. Vaccinate by any aseptic method; the writer usually employs the point coming with the glycerinized vaccin and the area is scarified. Cover the area of vaccination at once with sterile cotton and hold in place with collodion. A shield may be used over this dressing to prevent its removal. Conduct the vaccination as you would any other surgical case. Have the patient return on the third, fifth and seventh days. If there are no symptoms of itching, or of pain, do not remove the dressing until the fifth or seventh day.

On the day the dressing is removed, if there is no sign of vesiculation, reapply sterile dressing as before. On the seventh day, look again for the vesicles; if none, repeat dressing. Do this every two days until the tenth or twelfth day. If no vesicles show, revaccinate and proceed as before. If the vesicle shows at any dressing, brush the surface with tincture of iodin, then carefully clip the top off of the vesicle with a pair of sterile scissors. Paint the base of the vesicle with a thirty grain to the ounce solution of nitrate of silver, or with pure phenol (followed with alcohol). Put on a sterile dressing, or an antiseptic dressing. Change the dressing every two days. At the end of four or six days, there is a dry crust (not pustulating). Now the patient can take care of the wound, with a dressing of ichthyol (20 grains), phenol (10 grains), ointment (oxid of zinc ointment, 1 ounce), changed night and morning. The evils of vaccination, particularly those incidental conditions following the pustulating arm, Dyer claims, are prevented by such a procedure. There can be no impetigos, and erythema multiforme and its congeners cannot result from pus absorption.

Annals of Ophthalmology, New Rochelle, N. Y.

January, XLIII, No. 1, pp. 1-116

17 Enucleation with Implantation of Hollow Gold or Glass Sphere. A. Greenwood, Boston.
18 Practical Points Connected with Operative Treatment of Glaucoma. G. L. Johnson, Johannesburg, South Africa.
19 Absence of Cicatrization in Iris after Operation or Injury. M. McBurney, New York.
20 Case of Sarcoma of Lachrymal Sac. T. H. Butler, Birmingham, England.
21 Metal in Eye after Magnet Extraction. A. F. Mattice, Seattle, Wash.
22 New Aspects of Gout and Their Relation to Gouty Diseases of Eye. L. Lichtwitz, Göttingen.
23 Disease of Ocular Nerves in Diabetes Mellitus. M. Hoffmann, Munich.
24 Increased Intraocular Tension Due to Burns and Corrosive Injuries of Eye. R. Kuemmell, Erlangen.
25 Intraocular Tension in Passive and Active Motion of Eyeball. R. Lederer, Wuerzburg.

Arizona Medical Journal, Phoenix

January, II, No. 1, pp. 1-48

26 Status of Brain Surgery in Mental Disturbances. W. G. Randell, Florence.
27 American Insects and Arachnids Concerned in Transmission of Disease. A. W. Morrill, Phoenix.
28 Relation of Medical Profession to Society. J. E. Bacon, Phoenix.
29 Medical Science and the Criminal. G. W. P. Hunt, Phoenix.

Boston Medical and Surgical Journal

January 1, CLXX, No. 1, pp. 1-36

30 Carbon Monoxid Poisoning. W. H. Robey, Boston.
31 Old and Recent Ideas Concerning Treatment of Flat-Foot. H. W. Marshall, Boston.
32 Hair Cast of Stomach with Report of Case. G. A. Moore, Brockton, Mass.
33 Workmen's Compensation Law and Physician. J. B. Carroll, Boston.
34 Passing of Paranoia. J. B. MacDonald, Hathorne, Mass.

January 8, No. 2, pp. 37-76

35 *Effect of Digitalis on Blood-Pressure and Pulse-Pressure in Presence of Cardiac Decompensation. C. H. Lawrence, Boston.
36 Rectal Alimentation. H. W. Goodall, Boston.
37 Study of Leukemia. A. M. Burgess, Boston.
38 Office of Coroner and Medical School at Syracuse. H. G. Weiskotten, Syracuse, N. Y.
39 *Simple and Effective Method for Disinfection of Typhoid Stools. H. Linenthal and H. N. Jones, Boston.
40 Cancer of Lower Lip. J. C. Bloodgood, Baltimore.

35. **Effect of Digitalis on Blood-Pressure, etc.**—The effects of various drugs on the blood-pressure, as determined by experiments on animals, in Lawrence's opinion do not furnish reliable criteria for the administration of such drugs to man, since the effect may be quite different in the latter. The pressure-raising effect of digitalis noted by him in animals and in healthy individuals did not occur, as a rule, when the drug was administered to individuals suffering from cardiac decompensation. The cause of the cardiac decompensation did not appear to affect the action of the drug. He states that digitalis preparations may be safely administered to patients suffering from arteriosclerosis, angina pectoris, or nephritic hypertension, if cardiac decompensation is present; under such conditions it rarely causes a rise in blood-pressure.

Of twenty-six cases studied by Lawrence five, or 19 per cent., showed a rise in systolic pressure, the greatest increase noted being 30 mm. There was present in this case an acute infection, involving the heart and kidneys. Of the group of cases showing a rise in systolic pressure, none showed a diuresis. Four cases, or 15 per cent., showed no change in systolic pressure. Of these, none showed a diuresis. Seventeen cases, or 66 per cent., showed a fall in systolic pressure either during or immediately after the administration of digitalis preparations. Of these, 88 per cent. showed a diuresis. Only one case showed a rise in diastolic pressure. There was no diuresis. Four cases, or 15 per cent., showed no change in diastolic pressure. Of these, 75 per cent. showed a diuresis. Twenty cases, or 74 per cent., showed a fall in diastolic pressure, 63 per cent. of these showing a diuresis. Twelve cases, or 45 per cent., showed an increased pulse pressure, a diuresis occurring in 50 per cent. of this group.

39. **Disinfection of Typhoid Stools.**—The method referred to by Linenthal and Jones was devised by Dr. A. M. Kaiser in the Hygienic Institute of Gratz University. It consists of adding enough hot water to cover the stool in the receptacle and then adding about one-fourth of the entire bulk of quick lime (calcium oxid), covering the receptacle and allowing it to stand for two hours. The hydration of the lime generates enough heat to destroy the typhoid organism. While cold water may often suffice, it cannot be depended on owing to the variable quality of the lime. Hot water from 50 to 60 C. will always give the desired results. The lime used should be in lumps, broken up in small pieces and distributed over the stool.

Colorado Medicine, Denver

December, X, No. 12, pp. 359-396

41 Abderhalden's New Views on Metabolism. P. Hillkowitz, Denver.
42 Abderhalden's Pregnancy Test—Preliminary Report. W. W. Williams and C. B. Ingraham, Denver.
43 Acidosis. C. N. Meader, Denver.
44 Present-Day Tendency in Treatment of Tuberculosis. M. Collins, Denver.

Indiana State Medical Association Journal, Fort Wayne

December, VI, No. 12, pp. 531-586

45 *Symptomatology and Diagnosis of Chronic Bright's Disease. G. W. McCaskey, Fort Wayne.
46 Renal Pathology and Urinary Findings in Chronic Bright's Disease. H. R. Alburger, Indianapolis.
47 *Vascular Changes Secondary to Chronic Bright's Disease. C. F. Neu, Indianapolis.

48 *Eye Lesions of Chronic Bright's Disease. A. E. Bulson, Fort Wayne.
49 *Influence of Kidney Lesions in Determining Selection of Anesthetics and Surgical Risks. M. F. Porter, Fort Wayne.
50 Medical Citizenship. J. B. Maple, Shelburn.

45, 47, 48 and 49. Abstracted in THE JOURNAL, Oct. 11, p. 1399.

Journal of Experimental Medicine, New York

January, XIX, No. 1, pp. 1-120

51 *Does Cardiac Rhythm Alone Determine Human Blood-Pressure Variations? C. J. Wiggers, New York.
52 *Growth of Bacteria on Media Containing Various Anilin Dyes. C. Krumwiede and J. S. Pratt, New York.
53 *Acid Agglutination of Pneumococci. L. J. Gillespie, New York.
54 *Immunologic Study of Pneumococcus Mucosus. F. M. Hanes, New York.
55 *Causation by Filterable Agents of Three Distinct Chicken Tumors. P. Rous and J. B. Murphy, New York.
56 *Observations and Experiments on Goiter (So-Called Thyroid Carcinoma) in Brook Trout (Salvelinus Fontinalis). D. Marine, Cleveland.
57 *Tetany in Dogs. D. Marine, Cleveland.
58 *Experimental Hydrocephalus. W. S. Thomas, St. Louis.

51. **Does Cardiac Rhythm Determine Blood-Pressure Variations?**—Changes in cardiac rhythm, Wiggers claims, are not the only determinants of blood-pressure variations in man. They play a part in the variations of systolic and diastolic pressures, the relative importance of which depends on the degree of arhythmia present and on the depth of respiration which, in itself, causes the systolic and diastolic pressures to decrease during inspiration and increase during expiration. No degree of rate variation can be regarded as a type. The cases range from those in which respiration governs the change of pressures entirely through those in which more or less complicated mixtures of heart rate and respiratory influences intermingle to those in which extreme cardiac variations alone determine the pressure changes. The emphatic insistence of Henderson and his collaborators that heart rate changes play a more important part than is commonly recognized in man, Wiggers says, is true in many cases. That, in certain cases, it is the only determining influence may also be admitted, but they are in the minority. The majority show the intervention of a respiratory influence which controls, at least, the variations of systolic pressure. In the light of these results, the doctrine that, in man, an effective venous pressure exists sufficient during all respiratory phases to insure superimposable beats, must be subjected to further investigation.

52. **Effect of Anilin Dyes on Growth of Bacteria.**—Gentian violet and allied anilin dyes according to Crumwiede and Pratt, have a similar influence on bacterial growth, dividing bacteria into two groups corresponding in general to their reaction to the Gram stain. Among Gram-negative bacteria a strain is occasionally encountered which will not grow on violet agar, differentiating it from other members of the same species or variety. The reaction is quantitative, although the quantitative character is more marked with some species than with others. The streptococcus-pneumococcus group differ from other Gram-positive bacteria in their ability to grow in the presence of amounts of dye sufficient to inhibit the other species. The dysentery bacillus group shows marked variation in the presence of dyes. In the case of fuchsin the variation approaches closely a specific difference between the dysentery and paradysentery groups. The variations of the latter groups with other dyes show no correlation with the common differential characteristics. A closer study might reveal variations in other characteristics which would parallel the different reactions to dyes. Decolorization with sodium sulphite robs the dyes of some of their inhibitive powers.

53. **Acid Agglutination of Pneumococci.**—Eight strains of pneumococci of serological Type 1, eight strains of Type 2, and eleven strains belonging to neither type were tested by Gillespie by the method of acid agglutination. Strains belonging to the two typical groups have, as a rule, narrow zones of agglutination. The optimum hydrogen ion concentrations are different in the two cases. Other pneumococci have broad zones or, in a few cases, narrow zones not coincident with those occupied by the typical organisms. The agglutination of most of the pneumococci of Types 1 and 2 is extremely susceptible to the inhibiting action of salts. This is not true of the other pneumococci. Old broth cultures may show an optimum hydrogen ion concentration different from that shown by young broth cultures.

54. **Immunologic Study of Pneumococcus Mucosus.**—The organisms described by Schottmüller under the name *streptococcus mucosus* represent a well defined group with characteristics which Hanes says indicate a closer relationship to the pneumococci than to the streptococci. The members of this group are specifically agglutinable when treated according to the method of Porges. They do not agglutinate when subjected to the usual agglutination methods. Complement fixation experiments with these organisms, compared with similar experiments with two varieties of pneumococci and two streptococci, indicate that they are closely related to the pneumococci. No protection of mice against *pneumococcus mucosus* by means of specific immune serums could be demonstrated. Hanes suggests that the name *pneumococcus mucosus* should be adopted for this group instead of *streptococcus mucosus*.

55. **Causation of Chicken Tumors.**—A causative agent has been separated by Rous and Murphy from three chicken tumors of very different sort, namely a spindle-celled sarcoma, an osteochondro sarcoma and a spindle-celled sarcoma peculiarly fissured by blood-sinuses. This was accomplished after the tumors had been transplanted repeatedly and their malignancy enhanced. Each of the tumor-producing agents is a distinct entity in that it gives rise only to growths of the precise kind from which it has been derived. All pass through Berkefeld cylinders impermeable at the same test to small bacteria, and two of the three retain their activity in tumor tissue that has been dried or glycerinated. All are strikingly dependent for their action on derangement of the tissue with which they are brought in contact. The general findings strongly suggest that the agents are of about the same size, and of the same natural class. Rous and Murphy believe that it is perhaps not too much to say that their recognition points to the existence of a new group of entities which cause in chickens neoplasms of diverse character.

56. **Goiter in Brook Trout.**—Marine found that goiter in fish is a non-infectious, non-contagious, symptomatic manifestation of a fault of nutrition, the exact biochemical nature of which has not been determined. Feeding the highly artificial and incomplete diet of liver is the major etiologic factor in bringing about this fault of nutrition which is at once corrected by feeding whole sea fish. Water plays no essential part in the etiology, transmission or distribution of the disease in the fish of this hatchery.

57. **Tetany in Dogs.**—Accessory parathyroid tissue unassociated with the thyroid lobes is present in 5 to 6 per cent. of dogs. For the determination of the presence of accessory parathyroid tissue there are two tests: (1) the anatomic, often entailing serial sections of the neck and upper thoracic structures, and (2) the biological, consisting of the daily use of some calcium salt for two to three weeks. The latter is more easily carried out and more accurate. In the absence of all parathyroid tissue calcium salts will not save the animal's life, while in the presence of active parathyroid tissue calcium will save it. Many factors other than the amount of parathyroid tissue removed influence the onset of tetany, among which are age, pregnancy, lactation, rachitis, the administration of sulphur, and diet.

58. **Experimental Hydrocephalus.**—Thomas found that internal hydrocephalus can be produced experimentally by injecting a foreign substance into the ventricles. In these experiments, aleuronat, a granular, insoluble material, has caused an acute inflammatory reaction, characterized in the first week by an exudate consisting largely of polynuclear leukocytes. Later the picture is one of a chronic process; polynuclear cells are replaced by lymphoid and large mononuclear cells and there is proliferation of the connective tissue in the choroid plexus. Proliferation of the ependyma occurs in the first week but becomes more advanced in the second and third weeks, and there is increase in neuroglia more marked in the long-con-

tinued experiments. Ordinarily when aleuronat is injected into a serous cavity, the pleural cavity, for example, abundant accumulation of fluid takes place in twenty-four to forty-eight hours, and at the same time polynuclear leukocytes collect.

In the experiments in which the irritant was injected into the ventricle of the brain there was little or no dilatation apparent in the first week; absence of dilatation in all probability is due to the free outflow of the fluid. When obstruction occurs during the chronic stage of the inflammatory process dilatation of the ventricle follows. Choked disk and other symptoms of increased intracranial pressure accompany experimental hydrocephalus. Dilatation occurs slowly and reaches a maximum in about two months. In some of the experiments of longer duration obstruction can be demonstrated in gross or microscopically.

Obvious obstruction has not been found by gross examination in all instances, but in the experiments in which India ink was injected into the ventricle before death, obstruction to outflow was very readily demonstrated. The third and fourth ventricles were in all instances filled with the pigment, but none appeared on the surface of the brain, whereas in normal dogs the entire surface, especially the base, became deeply pigmented. Obstruction to the circulation of cerebrospinal fluid causing internal hydrocephalus may occur at the foramen of Monro, in the aqueduct of Sylvius, or, doubtless with greatest frequency, at the foramen of Magendie.

Journal of Nervous and Mental Disease, Lancaster, Pa.

December, XL, No. 12, pp. 753-824

59 Future of Neurology. C. L. Dana, New York.
60 Anterior Crural Neuritis (to be continued). C. M. Byrnes, Baltimore.
61 Analysis of Errors in Diagnosis in Series of Sixty Cases of Paralysis. S. T. Orton, Worcester, Mass.

Journal of Outdoor Life, New York

January, XI, No. 1, pp. 1-30

62 New Devices for Outdoor Sleeping. T. S. Carrington, New York.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

January, V, No. 3, pp. 215-316

63 *Mode of Action of Strophanthin on Cardiac Tissue. A. J. Clark, London.
64 Time Recorder for Kymograph Tracings. O. E. Closson, Detroit, Mich.
65 *Mechanism of Stimulation of Medullary Centers by Decreased Oxidation. H. S. Gasser and A. S. Loevenhart, Madison, Wis.
66 *Removal of Diffusible Substances from Circulating Blood of Living Animals by Dialysis. J. J. Abel, L. G. Rowntree and B. B. Turner, Baltimore.

63. **Action of Strophanthin on Cardiac Tissue.**—Clark found experimentally that the primary effect of strophanthin on the isolated heart is to increase the force of contraction; in the fresh heart the force of the auricular contraction is increased markedly but the force of the ventricular contraction less markedly. In the hypodynamic heart the force of contraction of both auricle and ventricle is increased greatly. The systolic action of strophanthin is opposed by the presence of acid, by the absence of calcium, and by the hypodynamic condition. The action of strophanthin in impairing the rate of conduction is not antagonized, but rather increased by the above conditions. This action, moreover, is not antagonized by any other changes in the ionic content of Ringer. The action of strophanthin on conduction appears to be largely independent of its action on contraction. The acids produced by the heart and which accumulate when perfusion is arrested, can be shown to antagonize the systolic action of strophanthin, and this fact explains why hearts, arrested in systole by strophanthin often relax into diastole, and also why hearts in which the conduction is impaired, before any systolic action has been produced, usually die in diastole and not in systole.

65. **Stimulation of Medullary Centers.**—By decreasing the oxidative processes, Gasser and Loevenhart determined the latent periods of their stimulation of the medullary centers. This was accomplished by the administration of carbon monoxid or sodium cyanid. The latent periods were found to be so short that the stimulation could not be attributed to the accumulation of acid products. They therefore feel forced to the conclusion that oxygen want is of itself a stimulus to the medullary centers.

They have shown by a direct method that carbon monoxid stimulates the vasomotor center. The early fall of blood-pressure so often produced by carbon monoxid is due to its direct action on the heart. The medullary centers respond to the anoxemia produced by carbon monoxid, first by stimulation and then by depression. The centers are stimulated and then depressed in the following order: respiratory, vasomotor and cardio-inhibitory. Support is given to the theory that the activity of the medullary centers depends on the condition of their oxidative processes.

A theory is tentatively advanced to account for the stimulation of the medullary centers by oxygen want or decreased oxidation according to which the oxidative processes occurring within the cell are of two types: those not requiring free oxygen, and of which functional activity is the external expression; and those requiring free oxygen and which result in the storing of potential energy and the removal of the products of activity. Stimulation of the latter processes automatically depresses the reactions of activity and depression of the processes characteristic of rest and recovery automatically stimulates those processes of which functional activity is the external expression.

66. **Removal of Diffusible Substances by Dialysis.**—The principle of the method used by the authors consists in connecting an artery of the animal by a cannula to an apparatus made of celloidin or other dialyzing membrane, in the form of tubes, immersed in a saline solution or serum, and providing for the return of the blood to the animal's body by another cannula attached to a vein. The tubes and cannulas are filled completely before attachment with a saline solution which approximates in composition to the salt content of the serum of the animal. This is displaced into the body by the inflow of blood, when the circulation in the apparatus is established. The blood leaving the artery flows through a perfectly closed system and returns to the body within a minute or two without having been exposed to contact with the air or any chance of microbial infection, while the diffusible substances which it contains can pass out, more or less rapidly through the walls of the tubes. Coagulation of the blood is prevented by injection of hirudin. The substitution in the animal's body of saline solution for an equal volume of blood leaves the physiologic condition as nearly as possible unchanged, and chemical results obtained by this method may be expected to represent normal conditions very closely, closer, e. g., than when large quantities of blood are drawn off for analysis. Two animals have made rapid and complete recovery after being subjected to the procedure for two and three hours respectively.

Kansas Medical Society Journal, Kansas City

December, XIII, No. 12, pp. 467-506

67 Benzol Treatment of Leukemia. L. S. Milne, Kansas City.
68 Irresponsible Medicine. N. Hayes, Seneca.
69 Effects of Explosion of Dynamite Caps on Tympanum and External Ear. R. S. Magee, Topeka.
70 Relation of Physician and Editor. J. L. Napier, Newton.

Kentucky Medical Journal, Bowling Green

December 15, XI, No. 24, pp. 1043-1078

71 Ocular Symptoms in Hysteria and Neurasthenia. S. G. Dabney, Louisville.

Michigan State Medical Society Journal, Grand Rapids

January, XIII, No. 1, pp. 1-72

72 *Diagnosis and Treatment of Tuberculosis. O. W. McMichael, Chicago.
73 *Emptying Uterus as One of Methods of Treating Antepartum Eclampsia. R. Peterson, Ann Arbor.
74 *Chronic Cystic Mastitis. E. S. Judd, Rochester, Minn.
75 Roentgenoscopy of Lungs. A. W. Crane, Kalamazoo.
76 Attitude of General Practitioner toward Tuberculosis Problem. J. B. Jackson, Kalamazoo.
77 Cancer and Plea for Earlier Diagnosis. S. Levin, Lake Linden.
78 Fractures from Medicolegal Standpoint. F. B. Tibbals, Detroit.

72. **Von Ruck's Treatment of Tuberculosis.**—McMichael speaks highly of K. von Ruck's vaccine. He emphasizes that unlike many preparations presented to the profession, thera

is absolutely no secrecy regarding the preparation or the details of its manufacture, and any reputable physician is welcomed and afforded every opportunity to study every phase of the work. This remedy, which is a vaccine containing all the soluble products of the tubercle bacillus, in proportions differing from those found in the tubercle bacillus as shown by chemical analysis. After a person, not infected with tuberculosis receives an injection of this preparation his serum develops the property of completely dissolving and destroying the tubercle bacillus in a test tube, a property which his serum did not possess before treatment. When the contents of this test-tube containing the tubercle bacilli killed by the patient's serum, without the addition of any other product are injected into an animal, the animal does not develop tuberculosis. McMichael's experience in treating more than two hundred children and adults with the vaccine has given him many convincing proofs of its efficacy. While this remedy is distinctly not a cure for tuberculosis, he says, it will do all that any of the present known specific products will do toward checking the ravages of the disease, and further, we have in this vaccine, as delicate a diagnostic aid as any we possess, with the added advantage that while using it for diagnostic purposes, we are at the same time employing a remedial agent.

73. **Emptying the Uterus in Eclampsia.**—Since the pregnant state is primarily responsible for eclampsia, Peterson states that the best interests of such patients are promoted by terminating the pregnancy as soon as this can safely be accomplished. The wasting of valuable time in other forms of treatment before operative delivery, is responsible, in great part, for the poor results of treatment in antepartum eclampsia. This is also aided by the selection of the wrong method of delivery of the antepartum eclamptic, whereby the patient is subjected to prolonged anesthesia and trauma and by the resulting sepsis from improper technic in patients whose powers of resistance are greatly lowered by the action of the eclamptic poison. The eclamptic should be delivered as soon as possible after the first convulsion, by the operation giving rise to the least shock and trauma. The eclamptic patient should be delivered first and then elimination started, rather than the reverse. Fortunately, the treatment best adapted to the eclamptic mother, is equally good for her child. Hence, immediate delivery after the first convulsion will result in a low fetal as well as a low maternal mortality.

74. **Chronic Cystic Mastitis.**—Judd believes that chronic cystic mastitis has a definite relationship to cancer of the breast and in many instances may be considered a precancerous condition. In cases suspicious as to malignancy, a radical operation for cancer should be performed. In cases of chronic systic mastitis that cannot either clinically nor pathologically be diagnosed as to malignancy, the conservation amputation with removal of the gland-bearing fascia is the operation of choice.

Mississippi Medical Monthly, Vicksburg

January, XVIII, No. 9, pp. 167-186

79 Surgery of Thyroid. L. B. Austin, Rosedale.
80 Kidney Disease as Sequel of Tonsillitis. T. Riddell, Dublin.
81 Gastro-Intestinal Intoxication. B. C. Tubb, Smithville.
82 Bulgarian Bacillus Baby. J. W. Gray, Clarksdale.

Pennsylvania Medical Journal, Athens

December, XVII, No. 3, pp. 169-252

83 Axial Myopia—Etiology and Prophylaxis. L. C. Peter, Philadelphia.
84 Commission of Conservation of Vision: Report of Chairman. W. C. Posey, Philadelphia.
85 Visual Requirements in Railway and Traction Services; and Protection of Eyes of Workmen in Large Shops. B. Chance, Philadelphia.
86 Ophthalmia Neonatorum. T. B. Holloway, Philadelphia.
87 Mechanotherapy; Outline of Its Resources and Limitations. J. M. Taylor, Philadelphia.
88 Mechanical and Physical Agents, Special Reference to Radium. W. H. Cameron, Pittsburgh.
89 Salvarsan and Neosalvarsan in Syphilis, with Special Reference to Diseases of Eye. A. A. Uhle and W. H. Mackinney, Philadelphia.
90 Studies in Serodiagnosis of Syphilis. J. A. Kolmer and A. J. Casselman, Philadelphia.
91 Transmutation of Tumors. W. L. Estes, South Bethlehem.
92 *Social Evil. E. Martin, Philadelphia.
93 Present Status of Operative Treatment of Appendicitis. S. D. Molyneux, Sayre.
94 Extra-Uterine Pregnancy at Full Term. W. D. Hamaker, Meadville.

92. Abstracted in THE JOURNAL, Oct. 11, p. 1398.

Philippine Journal of Science, Manila

October, VIII, No. 5, pp. 333-400

95 *Experimental Balantidiasis. E. L. Walker, Manila.
96 Influence of Compensated Salt Mixtures on Development of Polyneuritis Gallinarum and Beriberi. R. B. Gibson, Manila.
97 Unusual Disease Prevailing in Epidemic Form at Buhi, Ambos Camarines, P. I., M. A. Barber, Manila.
98 Infection of Achlya with Various Microorganisms. M. A. Barber, Manila.
99 Acute Malignant Glanders in Man. W. E. Musgrave and A. G. Sison, Manila.
100 Noma in Philippines: Report of Case. C. M. Reyes, Manila.
101 Varioloid in Manila. P. M. Ashburn, E. B. Vedder and E. R. Gentry, Manila.

95. **Experimental Balantidiasis.**—Parasitization of man with *Balantidium coli*, Walker states, is relatively common in the Philippine Islands. The balantidia appear in the stools of parasitized individuals only at irregular intervals, and consequently infections, unless accompanied by clinical symptoms, may frequently be overlooked. A large proportion of the pigs in and about Manila are parasitized with balantidia. Balantidia are passed in the resistant encysted stage more or less constantly in the stools of parasitized pigs. Morphologically *Balantidium coli suis* is identical with *Balantidium coli hominis*. Every person parasitized with Balantidium coli is liable soonor or later to develop balanatidial dysentery. Walker advocates that efficient prophylactic measures against balantidiasis in the Philippines should be directed against these animals, which should be confined and not allowed to run in yards and dwellings.

South Carolina Medical Association Journal, Seneca

December, IX, No. 12, pp. 330-360

102 Essential Hematuria. J. H. Taylor, Columbia.
103 Fracture-Dislocation of Seventh Cervical Vertebra. S. O. Black, Spartanburg.
104 Ascaris Lumbricoides and Report of Cases. B. Haynes, Spartanburg.
105 Treatment of Cancer. G. H. Bunch, Columbia.
106 Sims Memorial. G. T. Tyler, Greenville.
107 Gunshot Wounds of Abdomen. D. L. Maguire, Charleston.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Australasian Medical Gazette, Sydney

Nov. 22, XXXIV, No. 21, pp. 475-498

1 Induction of Pneumothorax for Cure of Pulmonary Tuberculosis. C. Reissmann.
2 Case of Syringomyelia. A. W. Campbell.

Dec. 6, No. 23, pp. 521-540

3 Defective Growth in Relatives, Investigated by Roentgenoscopy. H. Rischbieth.

Dec. 13, No. 24, pp. 541-562

4 Two Cases of Tuberculous Peritonitis. A. J. Nyulasy.
5 Radical Treatment of Trachoma. C. Shepherd.

Bristol Medico-Chirurgical Journal, London

December, XXXI, No. 122, pp. 289-390

6 Specialism and Medical Curriculum, Mainly in Reference to Otology, Rhinology and Laryngology. P. Watson-Williams.
7 Protective Ferments. I. W. Hall.
8 Cerebral Symptoms of Lobar Pneumonia in Children. F. H. Edgeworth.
9 Medical Observations in Clifton Zoological Gardens, and Birth of Two Russian Bear Cubs in Captivity. A. J. Harrison.
10 Splenectomy for Splenomegaly. J. A. Nixon.
11 Id. E. H. Groves.
12 Pericolitis. T. Carwardine.
13 Apparatus for Intratracheal Administration of Ether. F. E. Shipway.
14 Combined Manometer and Safety Valve for Intratracheal Anesthesia. S. V. Stock and J. D. Fry.
15 Simple Apparatus for Intratracheal Anesthesia. E. W. H. Groves.

British Medical Journal, London

December 27, II, No. 2765, pp. 1647-1652

16 *Nature of Old Age and of Cancer. H. Gilford.
17 Intratracheal Insufflation of Ether. F. E. Shipway.
18 Case of Ruptured Aneurysm of Descending Aorta. W. D. Mackinlay and L. M. Weeks.
19 Case of Spontaneous Hemo-Pneumothorax. T. Bushby.
20 *Lithopedion. J. B. Fraser.

16. **Nature of Old Age and of Cancer.**—Gilford suggests that it may be possible to explain everything that happens in cancer in terms of senility. Superficially the cancer process seems very different from the old age process; but if we ignore these superficial distinctions and fix our attention on the more fundamental changes, we see that in reality both are formed on the same plan and are actuated by the same motive. Thus, the typical cancer is made up of a collection of cells native to the part but of more embryonic type, and these cells are surrounded by collections of round indifferent cells derived from fibrous tissue and from other low-class structures, such as endothelium and leukocytes. The fibrous tissue, moreover, is often increased, as it is in the senile organ. These changes may be interpreted as follows:

Certain somatic cells become aged while the tissues around them are still in a state of comparative youth. They express their senility by returning to a more embryonic form, and as they do so they increase in number, the faculty of multiplication being one of the manifestations of regression. But as this qualitative change takes place they become alien to their surroundings, and, as foreigners or rebels, stimulate into action the mechanism of phagocytosis. Not only is there an incursion of lymphocytes into the parts, but the connective tissue and endothelial cells in their vicinity revert to their embryonic state and begin the work of phagocytosis. But as a fact they have to deal neither with the effete products of molecular degeneration nor with an inert foreign body, for though virtually strangers, cancer cells are by no means inactive.

Hence the attack is abortive, except in so far as the phagocytes, by forming new fibrous tissue, tend mechanically to limit the proliferation of the cancer cells. For in the meantime the fixed connective tissue cells are themselves rapidly proliferating, with the result that when they cease their activity and return to their resting stage groups of cancer cells are cut off by intersecting bundles of fibrous tissue, while the whole mass is surrounded by an incomplete capsule of the same structure. This tends to limit the encroachment of the growing cancer, and were it not for the lymph spaces or capillaries, which are the gaps through which the growing cells escape, no doubt the limitation and strangulation of cancers would occur far more often than they do.

The more nearly the cells of a cancer approach the embryonic state the more rapid will be the growth, the less opportunity for fibrosis the more malignant the cancer. In senile decay the cells of highest type, or the more specialized cells, do not proliferate but undergo molecular decay, whereas those of lowest type express their degeneration not in decay, but in proliferation. So, also, cancer elements are never derived from these same higher kinds of cells, but invariably from the lower kinds. Moreover, the lower the type of cells to become the basis of the cancer process the greater is its malignancy. It is neither the appearance of phagocytes, nor the increase of fibrous tissue, nor the proliferation of the cancer cells, which constitutes the cancer process. The root of the matter lies in the fact that the cancer cells have receded from a state of comparatively high development to a state of comparatively low development. Regression is the motive which prompts and animates the whole series of changes.

20. **Lithopedion.**—The case presented by Fraser has three interesting points: (1) The marked reduction in size and weight that took place during calcification. (2) The length of time it was carried by the mother, namely, forty-two years—possibly the world's record. (3) The comparatively slight disturbance it caused for almost forty years, and then only indirectly, as the costiveness was caused by the fibromyoma narrowing the lumen of the intestine to one-third of an inch. Early in the year 1870 a small, active woman, then aged 25 years, who had had three children, became pregnant for the fourth time. Matters progressed as usual for six months, then seemed to stand still; later the milk left the breasts, fetal movements lessened and finally ceased. Her girth decreased, and in a few months only a firm mass was felt at the brim of the pelvis

Anxious and puzzled, she consulted a doctor, who doubted that she had been pregnant, and advised leaving the mass alone as long as no serious inconvenience was felt. She followed his advice, and as time passed she had four more children; at each pregnancy the mass rose with the growth of the fetus, and returned to its old position after the birth of the child.

In January, 1912, she consulted Fraser for long-continued costiveness, which she said was increasing. She did not then tell him of the events of 1870. He tried cathartics with only temporary relief; then suspecting obstruction, an examination showed more than one mass in the pelvis. He operated and found a lithopedion at the brim of the pelvis; the head was easily movable, but the lower part of the body was almost surrounded by firm cartilaginous bands attached to the uterus, omentum and intestines. The calcified placenta was found opposite the third sacral vertebra, and so bound down by adhesions that it was difficult to remove it. To make matters worse, a fibromyoma had formed in a loop of intestine where it touched the placenta; thus Fraser had to resect over 3 inches of the intestine; the adhesions made this much more difficult. The head was covered by a thin membrane containing some blood-vessels; the anteroposterior circumference was 8¾ inches and the occipital menti circumference 9⅛ inches; the frontal, parietal and occipital bones were well marked, and there was only a slight depression of the fontanelles; the eyes, nose, chin and mouth were easily seen; the head was flexed and turned toward the left shoulder, and had a rough, stony feel. The legs and arms were flexed, with their outlines more visible on the right side; the ribs on the right side were easily seen, but the spinal vertebrae were indistinct. The placenta, somewhat biconvex, and with the center more friable than the outer surface, measured 9¼ inches in circumference, and was ⅞ of an inch thick in the center.

Indian Medical Gazette, Calcutta

December, XLVIII, No. 12, pp. 457-496

21 Typhoid Paratyphoid Vaccination with Mixed Vaccines. A. Castellani.
22 Treatment of Depressed Fractures of Skull at Rangoon General Hospital, during Last Four Years. C. C. Barry.
23 Two Cases of Abdominal Cysts. L. P. Stephen.
24 Disease "Carriers" in Army in India. P. Hehir.
25 *Renal Case and Relief of Renal Pain by Washing Out Pelvis of Kidney Through Urethral Catheter. D. Munro.
26 Malaria and Color. W. H. Kenrick.

25. **Relief of Renal Pain.**—The condition in the case cited seemed to Munro to justify an exploratory operation, and accordingly the kidney was exposed by the usual lumbar incision and brought out in the loin. It was large. No stone or tumor could be felt in the pelvis which was not dilated. To outward appearances the whole kidney was absoluteiy healthy. The pelvis was incised, and a probe passed down the left ureter to the bladder—it passed easily. A sterile solution of methylene blue was injected into the opening made in the pelvis of the kidney, and was immediately afterward recovered from the bladder. The kidney was explored from side to side with a fine trocar, no stone was found, and no pus. The opening in the pelvis was accordingly closed with fine catgut sutures which did not include the whole thickness of the wall, and the kidney replaced. A drain was put in for twenty-four hours.

The wound healed by first intention, and for three weeks the patient was pleased with himself. The paroxysms of pain then began again though slighter in degree and the urine was found to contain pus and red blood-corpuscles. Tubercle bacilli and bacillus coli communis were looked for, but not found. A month after the operation Munro performed cystoscopy. The left ureteric orifice was found to be a little reddened—the bladder was otherwise healthy in appearance. The urethral catheter was passed for 9 inches up the left ureter, and 1 ounce of warm boric lotion injected. At once a worm-like caseous cast of the ureter began to squeeze its way out alongside the urethral catheter. The catheter was withdrawn and was followed by a gush of pus. The bladder was then relieved of the turbid fluid which it contained and which was obscuring the view; on refilling the bladder with

clear lotion a number of caseous worms were seen lying on its base. The urethral catheter was again introduced and another ounce of warm boric lotion injected, which returned blood-stained. This procedure again relieved the patient, and he was free from severe attacks of pain for a month. The only kind of pain from which he suffered from then was apparently intestinal, at any rate it was quickly relieved by carminative mixture, and there was no tenderness on pressure over the kidney area.

Ten days after the second cystoscopy his urine still contained pus cells, and Munro determined to wash out the pelvis of the kidney again. At this, the third cystoscopy, three ounces of 0.5 per cent. silver nitrate solution were injected. Some turbid, but not caseous, pus escaped alongside the catheter on this occasion. The urine remained clear from then on till his discharge from the hospital a fortnight later.

Lancet, London

December 27, II, No. 4713, pp. 1813-1884

27 *Some Points in Diagnosis and Treatment of Granular Kidney. S. West.
28 Concussion Cataract: Its Medicolegal Aspect; with Report of Unusual Case. P. Dunn.
29 *Relation of Thyroid to Antitoxin. R. Farrant.

27. **Granular Kidney.**—Speaking of the use of a renal extract in granular kidney, West says that he has tried various methods, and for a time used a glycerin extract. He now uses an extract of kidney freshly prepared as required, using by preference the kidney of the pig, as being a mixed feeder, rather than the kidney of a vegetable feeder like the sheep. The great difficulty in obtaining evidence in favor of the usefulness of kidney extract in chronic renal disease, West points out, lies in the fact that its use must be continued for weeks or months before results can be expected; generally patience is exhausted before the time required, and the treatment given up because signs of improvement are not immediate. In granular kidney the cases come under observation so late in the disease, when the mischief is so far advanced, that much benefit can hardly be looked for. Yet he has seen some of the symptoms, especially headaches, relieved by this means when they had resisted other treatment and he cites a case in point.

The patient was a man, aged about 35, who had a typical chronic parenchymatous nephritis. He was passing a very large amount of albumin in the urine, was extremely anasarcous, with much ascites and a considerable pleuritic effusion on the right side. Both the abdomen and pleura had to be tapped more than once, but the fluid reaccumulated quickly. The man was regarded as a hopeless case. All the ordinary treatment was tried without success, the patient steadily went downhill, and the prospect seemed desperate. Renal extract was now given night and morning. In a few days he felt much better. The improvement soon became obvious, the effusions and the dropsy disappeared, slowly at first and then rapidly, and in about three weeks had vanished. The albumin in the urine also rapidly decreased, and on leaving the hospital about six weeks later amounted to a mere trace. The man was carefully watched for some months. He went back to work and remained well. West feels that his experience of some years justifies him in continuing and advocating the use of renal extract, but to be effectual in granular kidney it must be patiently and continuously perservered with for a long time.

Another case was that of a man 40 years of age, with the history that he was attacked with uremic fits about six months before West saw him, and on examination of the eye advanced albuminuric degeneration with much hemorrhage was discovered. A grave prognosis was given. West thought the case almost hopeless, but put him on renal extract, which was steadily persevered with for many months. He gradually recovered and is now well. The fact of his complete recovery from the eye as well as the renal symptoms makes West feel some hesitation about the correctness of the diagnosis, but the condition seemed plain enough at the time, and no one who saw him when first ill, either physician or ophthalmologist, had any doubt.

29. **Thyroid and Antitoxin.**—Farrant obtained the thyroids from fifteen horses that had received increasing doses of diphtheria toxin for a period of a year to eighteen months. It was found that they presented a varying degree of hyperplasia, but that when they were arranged in order, from the highest degree of hyperplasia to the lowest, they were in the reverse order of the antitoxic value of the serum. The apparently normal thyroid corresponded to the serum with the highest antitoxic value. Fifty-eight guinea-pigs were arranged in twenty-nine pairs, each of a pair being similar in appearance and weight. They were injected with different doses of diphtheria toxins. Half were otherwise untreated, the other half were given doses of thyroid powder. Eighteen—that is, nine pairs—were injected with doses of diphtheria toxin from 1 c.c. to 0.1 c.c. daily (a single minimal lethal dose was 1 c.c.); half of these pigs were otherwise untreated, the other half at the time and twenty-four hours previously were given thyroid powder by the mouth in doses from 0.06 to 0.01 gm. daily until they died. Four of the guinea-pigs given thyroid outlived the controls, 2 died before, and 3 died on the same day.

Six guinea-pigs were divided into three pairs, and every one received a single dose of toxin, from 1.4 to 1 c.c. Three were otherwise untreated; the other three were given a corresponding dose of emulsion made by pounding up six fresh guinea-pigs' thyroids with saline. Two of the guinea-pigs given thyroid lived the same number of days as the controls; the other one died two days before. Two rabbits were fed with 0.5 to 0.3 gm. of thyroid powder by the mouth every day for seven days; one had lost 42 per cent. of its weight, the other 15 per cent. They were bled out and the blood defibrinated and centrifugalized. The serum was injected in doses from 1 c.c. to 0.25 c.c. into 14 out of 28 guinea-pigs arranged in pairs. They were all given a single dose of 1½ times the minimal lethal dose of diphtheria toxin. Three of the guinea-pigs given the serum survived, 2 lived longer than the controls, 6 died on the same day, and the other 3 died before the controls. From this it is deduced that the serum of a thyroid-fed animal has practically no antitoxic value.

Annales de l'Institut Pasteur, Paris

November, XXVII, No. 11, pp. 893-1020

30 Toxicity of the Conjugated Sulphates of the Aromatic Series. (Etudes sur la flore intestinale. III.) E. Metchnikoff.
31 Germ of Rabies. (Le diagnostic de la rage par la démonstration du parasite spécifique.) L. Negri Luzzani. To be continued.
32 Antibodies and Animal Species. C. Levaditi and S. Mutermilch.
33 Regenerated Virus in Treatment of Rabies. O. Bujwid.

Bulletin de l'Académie de Médecine, Paris

December 2, LXXVII, No. 38, pp. 481-490

34 Chemico-Colloidal Mechanism of Senility and the Problem of Natural Death. G. Marinesco.

December 9, No. 39, pp. 491-537

35 Chronic Jaundice from Obstruction of Syphilitic Origin. J. Castaigne.
36 Artificial Lipoid Membranes. E. Fourneau.

Bulletins de la Société de Pédiatrie, Paris

November, XV, No. 9, pp. 461-515

37 *Treatment of Pott's Disease by Immobilization without Plaster Cast. A. Broca and Trèves.
38 Social Service at the Hospital. Nageotte-Wilbouchewitch.
39 Loss of Minerals in Stool of Infant. (Les pertes minérales par les selles chez un nourrisson athrepsique.) A. B. Marfan, H. Dorlencourt and F. Saint-Girons.
40 Mongolian Blue Spot in Greece; Nine Cases. C. Macaronopoulos.

37. **Treatment of Pott's Disease.**—Broca and Trèves call attention to the cure of severe Pott's disease in five typical cases, described in detail, in which the children never left Paris, but spent three years stretched on a portable bed without other care than that given by their parents. They are now well and merely wear a small supporting corset as a precautionary measure. Lannelongue's technic was followed; it is not applicable when the family are not able to care properly for the child. Consequently the children of wage-earners require a plaster cast, as less attention is necessary with this.

Semaine Médicale, Paris

December 17, XXXIII, No. 51, pp. 601-612

41 Ante Partum Vaginal Douches in Prophylaxis of Puerperal Fever. R. de Bovis.

Archiv für Kinderheilkunde, Stuttgart

LX-LXI, pp. 1-818. A. Baginsky Festschrift

42 *Inherited Syphilis with Tardy Manifestations. (Zur hereditären Spätsyphilis.) G. Alsberg.
43 *Research on Action of Tuberculin. H. Aronson.
44 *Dysentery among Young Children. (Y-Ruhr bei Säuglingen und kleinen Kindern.) J. Bauer, Ellenbeck, Fromme, Siegel.
45 *Treatment of Rachitic Deformity. M. Böhm.
46 Negative Findings in Four Syphilitic Children over Two Years After Salvarsan Treatment. J. v. Bokay.
47 Rumination in Infants. (Zur Kenntnis des Wiederkäuens im Säuglingsalter.) H. Brüning.
48 *Tuberculosis in Infants. (Säuglingstuberculose.) J. Cassel.
49 *Acute Encephalitis in Children. J. Comby.
50 *Little's Disease; Eighty-Four Cases. L. Concetti.
51 Infants Should be Taken out of Tuberculous Environments. (Zur Frage: Stillen bei Muttertuberculose.) O. Cozzolino.
52 *Course of Tuberculosis in Children. (Erfahrungen über den Verlauf der Tuberkulose im Kindesalter.) A. Czerny.
53 Bantî's Disease in Children. A. D'Espine.
54 Anatomy of Bronchi in Children. (Form, Lage und Lagerveränderungen des Bronchialbaumes.) S. Engel.
55 Variola in New-Born Infants. A. Epstein.
56 Infant Mortality in Baden. S. Felsenthal.
57 Reminiscences. (Erinnerungen aus den Lehr- und Wanderjahren.) R. Fischl.
58 The Pulse and Blood-Pressure in Children. R. Friberger.
59 Modern Operative Treatment of Peritonitis. T. Gluck.
60 Defective Development of Teeth in Relation to Rachitis and Spasmophilia. (Zahnschmelzdefecte in ihren Beziehungen zu Rachitis und den spasmophilen Zuständen des Säuglings- und des späteren Kindesalters.) H. Helbich.
61 Non-Pathologic Murmurs in Heart Region in the Young. (Bedeutungslose Geräusche in der Präcordialgegend.) C. Hochsinger.
62 Scarlatinal Lesions in the Adrenals. V. Hutinel.
63 Pediatrics in the United States. A. Jacobi.
64 Municipal Infant Welfare Work at Liége. (Die staatliche Säuglingsfürsorge in Lübeck.) J. Joel.
65 Contagiousness of Epidemic Poliomyelitis. (Zur Contagiosität der Heine-Medinschen Krankheit.) J. Langer.
66 Primary Acute Suppurative Inflammation of Salivary Glands in Infants. (Speicheldrüsenentzündung des frühen Säuglingsalters.) J. Lewin.
67 Spastic Paraplegia from Inherited Syphilis. A. B. Marfan.
68 Mode of Infection with Tuberculosis in Infants. O. Medin.
69 Chemical Composition of the Thymus. L. Mendelsohn.
70 Masturbation in Very Young Children. (Die Masturbation im vorschulpflichtigen Alter.) E. Neter.
71 Diagnosis by the Ophthalmoscope of Optic Neuritis. R. Paderstein.
72 *Importance of Training the Muscles in Children in Prophylaxis of Tuberculosis. (Muskelarbeit und Körperconstitution.) H. Roeder.
73 *Backward Children. (Schwachbegabte Kinder.) E. Schlesinger.
74 *Sterile Raw Milk. (Keimfreie Rohmilch.) A. Schlossmann.
75 Distribution of Diphtheria in the Heart Blood and in the Organs. P. Sommerfeld.
76 Electric Incubator. (Ueber die elektrische Sicherheitscouveuse—Baginsky-Hanfland.) W. Thiede.
77 A Russian Pioneer in Pediatrics. (Die Meinungen C. W. Hufelands über die Pädiatrie im Lichte der Jetztzeit.) J. W. Troitzky.
78 Prognosis of Tuberculosis in Infants. G. Tugendreich.
79 Acute Osteomyelitis and Osteoplastics in Children. Wachsner.
80 Relapsing Fever in Children. (Rückfallfieber bei Kindern in Odessa.) J. Winocouroff.
81 *Dispensary Tuberculin Treatment. (Zur ambulatorischen Tuberculinbehandlung der Scrophulose und kindlichen Tuberculose.) W. Wolff.
82 *Mistakes in Diagnosis of Poliomyelitis. (Fehldiagnosen bei Poliomyelitis.) J. Zappert.

42. **Inherited Syphilis with Tardy Manifestations.**—Alsberg reports a case of tertiary manifestations of syphilis in a child of 4 brought to the clinic on account of exophthalmos of one eye and caries of the skull. The local processes were benefited by iodid and mercury, but the general health suffered so much from the latter that they had to be stopped. There was no certain evidence of syphilis in the parents, and they refused to permit the Wassermann test in the family.

43. **Action of Tuberculin.**—This communication from Baginsky's service asserts as the result of years of clinical and experimental research on the subject, that tuberculin has no immunizing effect. This fact must be constantly borne in mind. The probable mechanism of the change for the better that follows its use, must be that in the small doses in which it should be given it has a stimulating action on the white blood-corpuscles.

44. **Dysentery in Young Children.**—In an orphan asylum at Düsseldorf an endemic of Flexner dysentery developed among the children, sparing 11 breast-fed infants; all but 7 of 29 bottle-fed infants gave a positive seroreaction and over a third of all the children had the dysentery. Examination of the stools proved the only reliable means to differentiate the disease. Young children seem to be specially susceptible to this type of dysentery; none died, as the children in this institution were all in remarkably good health at the outbreak of the endemic.

45. **Rachitic Deformities.**—The wonders that can be accomplished by osteoclasis plus osteotomy are shown in over twenty-two illustrations.

48. **Tuberculosis in Infants.**—Cassel states that six cases of active tuberculosis developed among the 1,282 children at the children's asylum in his charge during the last nearly eight years. The temperature chart shows the first onset and the course of the disease in three cases, the temperature findings being recorded for practically the entire life of these three infants. The first sign of anything wrong was a slight rise in temperature noticed in the sixth, eighth and eleventh week in one case; the other children already had fever when admitted. The fever was of a remittent character with abrupt rise at evening and drop in the morning. Notwithstanding the fever the children gained almost normally in weight for a time. A number of the other children have been thriving and seem to be in good health although at one time they reacted positively to the skin tuberculin test. Tuberculosis in infants thus is not necessarily always fatal.

49. **Acute Encephalitis in Children.**—Comby says that acute, non-suppurative encephalitis is quite common in children, especially in infants, and in them more common after weaning. It is rare after 7, and exceptional after 10. As a rule it follows some infectious disease or process, and the first sign is usually a convulsion. The treatment is that for acute meningitis and later for sclerosis of the brain which is the frequent outcome.

50. **Little's Disease.**—Concetti gives forty illustrations as he describes the various forms in which Little's disease may manifest itself. His work is based on eighty-four cases with necropsy in seven, and all the data confirm his assumption that the trouble is essentially the arrest or partial loss of the normal relations between the brain and the spinal cord, that is, the primary or the cortex-medullary neurons are unable to develop properly or to do their function normally. The result of this may be a number of widely differing syndromes, as he enumerates in detail. As the shorter neurons complete their development first, they may functionate normally while the longer neurons, those governing the legs for instance, show still defective functioning.

52. **Course of Tuberculosis in Children.**—Czerny declares that his many years of observation of the course of tuberculosis followed throughout the child's life has demonstrated beyond question that the condition of the nervous system is a decisive factor in the outcome of the disease; in children with an excitable nervous system the disease runs a more rapid and malignant course. Children with a sound, not easily excited nervous system do much better. The food has far less to do with the outcome. The nervously excitable children have a very unstable circulation, that is, distribution of the blood-supply. It is much livelier than in the more phlegmatic, and this is what keeps constantly whipping up the tuberculosis.

The excitable nervous system is born with the child, but it can be rendered more or less irritable by the way the child is being brought up, and this is a very important argument in favor of the tranquil environment of a sanatorium for children. Conditions in the home may be made to approximate this, but they seldom do. The open air, moving air, he says, is the most important factor in the cure; sunlight is a minor factor, and he has never witnessed improvement under tuberculin that could not be paralleled or surpassed in other cases without the tuberculin. He has noticed that the course of tuberculosis in children is aggravated and new foci developed when the children took a course of drinking mineral waters. Meat and vegetables twice a day, very little milk, and cod

liver oil to supply fat are the main reliance in diet, striving to keep down the intake of fluids and consequently not trying to make the children increase in weight. Another point to which he pays special attention is to prevent the development of a fistula; the most rebellious foci are generally those with an existing fistula. Puncture in time to prevent a fistula is extremely important.

72. **Training the Muscles as Prophylaxis of Tuberculosis.**—Roeder has long advocated and carried out long hiking trips for boys and girls as an important aid in the physical development of the young. His experience in this line has convinced him that the muscular effort involved is the main beneficial factor; the other factors are subsidiary. The corollary follows that it is possible to obtain good results with systematic muscular exercises at home or in school. By training the muscles of respiration it is possible to develop conditions in the lungs which render them refractory to tuberculosis. He has organized a society which plans and provides for these hiking trips for boys and girls between 11 and 14, and he has watched the influence on their development of these systematic *Jugendwanderungen*. The results have far surpassed all expectations; the trips each time started a new era of growth and development in the children in their several days of life in the open air with exercise and good food. He extols them as a method of biologic prophylaxis against tuberculosis during the second period of growth, when the young are most inclined to develop tuberculosis.

73. **Feeble-Minded Children.**—Schlesinger devotes 130 pages to his study of the physical and mental development of backward children during the school age and the provisions which they require then and afterward. He gives 100 case histories and sixty-five illustrations of the children, and urges the necessity for special colonies, technical schools and other measures to reduce to the utmost the handicaps under which these young people suffer.

74. **Sterile Raw Milk.**—Schlossmann gives an illustrated description of an apparatus which sprays the milk under pressure, heating it momentarily and then cooling it rapidly. Milk thus treated, he states, is sterile while it retains all the properties of raw milk.

81. **Dispensary Tuberculin Treatment of Children.**—Wolff reports fourteen cases of children with tuberculous lymph-nodes or other focus given a systematic course of tuberculin treatment at the policlinic. The results were good, but he thinks that about as good results could have been realized without the tuberculin. It certainly did no harm under his cautious dosage.

82. **Mistaken Diagnosis of Poliomyelitis.**—Zappert reports a case of mild and completely cured poliomyelitis in a child of 3; there had been merely a few days of what was supposed at the time to be a febrile influenza. After subsidence of the fever, the family noticed that the child refused to get up and at first screamed if its legs were handled. The left knee-jerk was attenuated and this leg dragged a little after the child got up, but normal conditions in every respect were soon restored. The retrospective diagnosis was unmistakable. In three other cases the disease had been mistaken for diphtheria, and antitoxin injected. The primary paresis of the muscles of respiration may be taken for diphtheric croup, and the paralysis of poliomyelitis which develops with a sore throat may be taken for postdiphtheric neuritis. He warns further that poliomyelitis may be accompanied by an eruption with desquamation suggesting scarlet fever, but differing in several points from the latter as careful investigation will reveal.

In another case acute otitis and beginning pneumonia had been diagnosed, but the extent of the râles caused some hesitance. The extreme dyspnea rendered the prognosis grave, and the physician was surprised to find two days later that the fever had dropped and the dyspnea improved, while the reflexes were found impaired and some paresis of the legs was noticed. The assumption then of poliomyelitis was justified by the subsidence of all symptoms except that slight paresis of one leg persisted for a time. The ears proved to have nothing the matter with them. The patient was a boy of over 3. Wolff thinks that this case throws light on many cases of sudden fatal bronchitis in infants; instead of bronchitis, the trouble in reality was poliomyelitis. The reflexes should be tested as a routine measure in case of suspected pneumonia or bronchitis in children. In another case acute articular rheumatism was mistaken for poliomyelitis; this blunder prevented the routine treatment for the polyarthritis.

Archiv für Verdauungs-Krankheiten, Berlin

XIX, No. 6, pp. 663-832

83 *Quantitative Test of Pancreas Functioning. J. Matko.
84 Action of Certain Drugs on Uric-Acid Metabolism. (Vergleichende Untersuchungen über die Einwirkung des Phenylcinchoninsäureäthylesters und der Salicylsäure auf den Harnsäurestoffwechsel.) G. Pletrulla.
85 *Duodenal Tube Autodrainage of Stomach and Duodenum for Diagnostic Purposes. S. Bondi.
86 Non-Operative Dilatation of the Pylorus. (Weitere Erfahrungen mit der Streckung des Pylorus.) M. Einhorn (N. Y.).
87 Spasmodic Closure of Gastro-Enterostomy Opening. (Die Misserfolge der Gastroenteroanastomie bei Pylorusstenose infolge spastischen Verschlusses der Magenfistel.) W. Zweig.
88 *Pheno-tetrachlorphthalein Test of Liver Functioning. L. G. Rowntree, J. H. Hurwitz and A. L. Bloomfield. (Funktionsprüfung der Leber unter experimentellen Bedingungen mittels Phenoltetrachlorphthalein- und Lipaseb estimmung.) G. H. Whipple.
89 Case of Hour-Glass Stomach, Gastric Ulcer and Perigastritis. F. W. Hopmann.

83. **Test of Pancreas Functioning.**—Matko states that the pancreas may secrete too much or too little pancreatic juice, and that the test described will give exact information as to which if either of these conditions prevails, and it permits quantitative estimation of conditions. In the morning the patient takes fasting a chop weighing 130 or 150 gm. without bone or fat and a capsule containing 0.3 gm. carmin. Two hours later he is given 15 gm. Carlsbad salts dissolved in 200 c.c. water and 200 c.c. additional water. A similar dose is given the evening before, half an hour after an exclusively fluid supper. The proportion of pancreatic ferment in the stool varies at different hours, so he has all the portions of stool voided during the day set aside in a cool place. All the carmin-tinted portions are finally poured together, measured and filtered. The first few cubic centimeters are thrown away as too turbid, and the rest of the clear filtrate is tested for the presence of trypsin by its power to digest casein in a set of graduated test-tubes (Orlowski-Gross). The findings are always calculated by the total amount of stool, not by the proportion in the test-tubes alone. Investigation of the antitrypsin property of the blood-serum revealed a remarkable parallel behavior.

85. **Automatic Drainage of Stomach and Duodenum.**—Bondi writes from von Noorden's clinic to describe a method of examining conditions in regard to the functioning of the stomach and duodenum which seems to be free from several of the drawbacks of other methods. The patient swallows a duodenal tube with perforated olive tip. The swallowing proceeds more easily if the patient sucks with his lips as the tube passes downward. Then the patient reclines on his right side, the end of the tube hanging free over the edge of the bed. With normal persons, fluid soon begins to drip from the tube. The flow of fluid is not hastened by aspiration but it is left to flow automatically, and by this means exceptionally instructive findings are obtained.

The method has been applied 200 times in all, to 153 persons, and it has thrown light on normal and morbid conditions in the stomach, duodenum and connected glands. The findings are peculiarly instructive in cases of atony of the stomach and hypersecretion. By examining the different portions of the fluid at different intervals, the condition in regard to the different digestive ferments could be traced with extreme precision. The variations in the bile tint of the alkaline secretions at different times revealed an occasional nervous inhibition of the flow of bile, a phenomenon probably important in the pathogenesis of gall-stone colic. The method also discloses whether the bile duct is completely or only partially obstructed. Blood was found in the duodenal content not only with duodenal ulcer, but in certain other

conditions. The bile could be tested for urobilin; it showed abnormally high proportions in certain affections of the blood-producing organs. Another instructive finding was the discovery of pus cells in the duodenal content as a sign of gall-bladder disease. Numerous bile casts were found in the sediment in a case of severe liver disease. A number of typical cases are related recording the findings with this continuous automatic drainage of the stomach and duodenum in various morbid conditions.

88. See abstracts 17-19 in THE JOURNAL, Dec. 13, 1913, p. 2190.

Beiträge zur klinischen Chirurgie, Tübingen

November, LXXXVII, No. 3, pp. 539-751

90 Promotion by Posture of Absorption in Peritoneum and Pleura. (Peritoneale und pleurale Resorption in ihren Beziehungen zu der Lagerungsbehandlung.) W. E. Dandy and L. G. Rowntree (Baltimore).
91 Traumatic Injury of the Foot. (Traumatische Affektion des Os lunatum und naviculare carpi.) E. W. Baum.
92 Case of Retroperitoneal Ganglioneuroma. L. Rapp.
93 Rectal Cancer; 179 Cases. J. Oehler.
94 Acute Appendicitis; 560 Operative Cases. G. O. Hagmaier.
95 Fracture of the Upper End of the Radius. (Frakturen des Capitulum und Collum radii.) W. Stoecklin.
96 Congenital Coxa Vara. E. Schwarz.
97 *Separation of the Epiphysis of the Femur in Children. (Zur Frage der spontanen Epiphysenlösung—intracapsulären Schenkelhalsfraktur?—im Kindesalter.) E. Schwarz.
98 Acute Necrosis of the Pancreas. G. Ricker.

97. **Spontaneous Separation of the Epiphysis.**—Schwarz gives eight roentgenograms and several case histories to sustain his view that the epiphysis at the upper end of the femur does not become separated suddenly under the influence of a trauma. Conditions are more complex here than at similar points elsewhere. Even a very slight trauma may suffice to loosen the epiphysis but this is not evident on roentgenoscopy as the tough capsule prevents dislocation. Gradually the separation becomes complete as the child uses the limb. The trauma generally is so slight that it is unnoticed at the time or is soon forgotten. Only later and gradually is attention attracted to a slight limp. Then coxa vara develops, as the first stage, the final stage being the complete separation of the head from the neck. The neck may gradually waste away from lack of adequate nourishment. Beside this typical affection, there may be spontaneous fracture of the neck of the femur in that a wedge-shaped piece is separated from the lower half of the neck but still clings firmly to the epiphysis. The explanation of this is a primary congenital coxa vara.

Berliner klinische Wochenschrift

December 15, L, No. 50, pp. 2313-2360

99 Appendicitis Fifty Years Ago and To-day. E. Sonnenburg.
100 *Successful Removal of Tumor in the Optic Thalamus and One in the Corpora Quadrigemina. (Geschwülsten der Sehhügel- und Vierhügelgegend.) H. Oppenheim and F. Krause.
101 Present Status of Treatment of Glaucoma. H. Sattler. Commenced in No. 49.
102 Germ of Variola. V. (Ueber den Pockenerreger.) W. Fornet.
103 *Contact Infection in the Spread of Cholera. Eckert.
104 Heterogenetic Antibodies. E. Friedberger and F. Schiff.
105 Chemical Composition and Physiologic Action. A. Langgaard.
106 *Vaccine Therapy of Cancer. (Der gegenwärtige Stand der Behandlung der bösartigen Geschwülste.) F. Blumenthal.

100. **Recent Conquests in Brain Surgery.**—The two patients whose cases are described and illustrated were presented at a recent meeting of the Berlin Medical Society. One, a woman of 24, had had a round-celled sarcoma, measuring 5.5x6x8 cm., removed from the region of the optic thalamus. The other, a boy of 10, had had a small fibrosarcoma removed from the region of the corpora quadrigemina with complete success, all the symptoms of pressure on the brain subsiding. The focal symptoms are still improving, day by day. The one symptom that persists most tenaciously is the abolition of the pupil reflexes. There is also tachycardia. The technic followed in this case permits ample access to the pineal gland as well.

103. **Cholera.**—Eckert concludes from his experience in the Balkan campaign that a clean and perfectly drained city need have no fear of cholera. Notwithstanding the constant importation of fresh cases of cholera into Sofia, which is drained by mountain streams, no epidemic resulted. Only twenty-four cases out of 160 in which the details were known originated in the city and twelve of these were in soldiers or those who tended them. One month there were 600 cases of cholera in the hospital but there was no instance of hospital infection known, although other patients frequently came into contact with the cholera cases. Flies did not seem to carry the infection; it seems evident that a large number of germs are necessary to transmit cholera.

106. **Vaccine Therapy of Cancer.**—Blumenthal concludes from his review of what has been attempted and accomplished in this line, that the results justify further work with vaccine therapy of cancer. He advises when the cancer is inaccessible or the seat of severe mixed infection to make the extract for the vaccine from an analogous accessible tumor on another person. Success depends on the practical identity of both growths.

Correspondenz-Blatt für Schweizer Aerzte, Basel

December 6, XLIII, No. 49, pp. 1601-1656

107 *Appendicitis in Switzerland. C. Roux and F. de Quervain.

December 13, No. 50, pp. 1657-1688

108 *Successful Operative Treatment of Embolism. (Erfolgreich operierter Fall von Embolie der Arteria femoralis und der Arteria profunda femori.) H. Matti.

107. **Appendicitis in Switzerland.**—The experiences here related were presented at the inaugural meeting of the recently organized Swiss Surgical Association, which opened with a membership of 112. In his presidential address, T. Kocher of Berne pleaded for the cooperation of the surgeon with the internist in the borderland affections, without waiting until operative treatment becomes imperative. The internist should call the surgeon in to consult with him early in the case, so that the progress, up or down, could be interpreted by specialist skill in every direction.

Roux' discussion of appendicitis was based on his own experience and de Quervain's on a collective investigation throughout Switzerland. All the cases of appendicitis given operative treatment in Swiss hospitals during the last five years are classified as the operation was done the first, second, third or fourth day or later. A colored chart illustrates the data and also the findings in the appendix the first or second day, and the date when the patients left the hospital, compared with the day at which the operation was done. In some previous collective statistics (1895) only 6.5 per cent. of the 7,213 patients were given operative treatment, while the later statistics show 83.3 per cent. operated on among 6,116 patients, and in Roux' service 91.5 per cent. of 404 cases. All the speakers reiterated that the fate of the patient lies in the hands of the physician who sees him the first day.

108. **Operative Treatment of Embolism.**—The right femoral artery suddenly became obstructed with an embolus, as was rendered evident by the sudden intense pain in the right foot and leg and shutting off of the circulation below. The patient was a man of 70 with failing compensation of a heart defect. A pulse could be felt in the artery down to 3 cm. above Poupart's ligament, and Matti decided to cut down on the artery rather than to amputate. He removed five embolic plugs, but as the blood even then did not flow from the peripheral artery, he stroked it upward and thus worked out a fresh clot, 15 cm. long. Over thirteen hours had elapsed before the operation, and yet the circulation was restored at once and completely except in two toes, which became mummified later. The advanced arteriosclerosis was probably a factor in this. There were signs later of thrombosis in the artery, and necropsy showed that the thrombus was adherent to the walls beyond as well as at the site of the suture. It caused no appreciable disturbance except reduction of sensibility in the lower half of the leg. The patient died two months after of his heart disease plus pneumonia. In conclusion Matti compares his case with ten other recorded operations of the kind on the femoral artery, remarking that his case is the third successful one, and is remarkable for the age of the patient; the others were men of 31 and 43. He regards Murphy's case as a dubious success (THE JOURNAL, 1909, lii, 1661).

Deutsche medizinische Wochenschrift, Berlin

Dec. 11, XXXIX, No. 50, pp. 2441-2488. Koch Memorial Number

109 *Tuberculin Dispensary League. (Welche Massnahmen sind zur weiteren Eindämmung der Tuberkulose als Volkskrankheit erforderlich?) F. Loeffler.
110 Reminiscence of Koch's Early Research on Tuberculosis. (Erinnerungen aus der Zeit der ätiologischen Tuberkuloseforschung Robert Kochs.) P. Ehrlich.
111 Robert Koch and the Problem of Specificity. W. Kolle.
112 *Time and Local Factors Predisposing to Infectious Diseases. H. Kossel.
113 *Milk as Source of Typhoid. (Typhusverbreitung durch Milch und ihre Verhütung nach den in Schleswig-Holstein gemachten Erfahrungen.) B. Fischer.
114 *Systematic Prophylaxis of Typhoid. (Der Typhus in Oberstein unter dem Einfluss der systematischen Typhusbekämpfung.) O. Lentz.
115 Antimony in Spirochete and Trypanosome Diseases. P. Uhlenhuth and G. Hügel.
116 Pulmonary Tuberculosis and Hydrotherapy. L. Brieger.
117 *Biology of Tubercle Bacilli. G. Lockemann.
118 *Serodiagnosis of Tuberculosis. (Antigengehalt Kulturlösungen von Tuberkelbazillen.) B. Möllers.
119 Differentiation of Human and Bovine Tuberculosis by Means of Theobald Smith's Reaction Curve. J. Wankel.
120 Failure of Attempts to Induce Local Immunity of the Skin. (Ueber Versuche, eine lokale Resistenz der Haut gegen Tuberkuloseinfektion zu erzeugen.) O. Steiner and S. Abelin.
121 Tuberculin. W. G. Ruppel.
122 Growth of Mouse Cancer Checked by Allyl Derivatives. H. Koenigsfeld and C. Prausnitz.

109. **Outlook for the Campaign against Tuberculosis.**—Loeffler thinks that a new era of progress will dawn in the prophylaxis and treatment of tuberculosis when Wilkinson's method is more widely adopted. He has been investigating at London Wilkinson's tuberculin dispensary method, and witnessed for himself the outcome after five years—almost 100 per cent. of cures in the first stage of tuberculosis and 60 or 70 per cent. of cures in the second stage. The treatment is begun with minute doses of bovine tuberculin, gradually increasing the doses and the strength of the tuberculin and then changing to Koch's "old" tuberculin, continuing with this in increasing doses to a maximum of 0.01 or 0.02 c.c. Wilkinson has succeeded in organizing a "Tuberculin Dispensary League" so that means to equip and maintain numerous dispensaries are available. His principle is "early diagnosis and treatment, before lung tissue has been destroyed and before the wage-earning capacity has been reduced." The tuberculin treatment does not interfere with the patient's occupation if the dispensary is convenient of access, and Loeffler urges the organization in Germany of a similar chain of dispensaries as the next great advance in the campaign against tuberculosis.

112. **Local Factors in Epidemics.**—Kossel expatiates on the way in which laboratory research has solved problems which epidemiology alone could never have solved. It has shown that the old conception of seasons and localities as breeders of certain diseases is readily explained by the life-habits of certain insects and rodents and by the movement of the population, traffic, transportation, etc. He denounces Emmerich's theory that certain soils have a favoring and others a destructive action on disease germs, especially the cholera vibrio, saying that the ground is covered up so much now with pavements and buildings that the "soil" would have little chance to act on the germs in many places.

113. **Milk as Source of Typhoid.**—Fischer reviews the lessons learned from a number of epidemics of typhoid in northern Germany of recent years. The importance of milk as a carrier of the disease was amply demonstrated in these experiences and the promptly effectual means of stamping out the epidemics by seeking out and removing from the handlers of the milk all persons who were found to be chronic carriers.

114. **Typhoid Bacilli Carriers.**—Lentz states that in the Oberstein district typhoid for years had been endemic when, in 1903, the authorities took up the matter and discovered a dangerous chronic carrier. The next year six more were found, and two in 1907 and one in 1908. These carriers were mostly women and mothers of large families. They were instructed as to the dangers from them to others and were repeatedly rewarned of the necessity for extreme cleanliness. It was impressed on them that after defecation and again before touching any article of food, even buttering a slice of bread, they must wash their hands systematically and thoroughly with soap and water and, before laundering, their under linen and bed linen must be put to soak for twenty-four hours in strong soapy water. Attempts to enforce more vigorous measures met with some resistance, but these simple precautions and reiterated warnings have proved effectual, only one case of typhoid being known in the district during 1912 and two this year.

117 and 118. **Biology of Tubercle Bacilli.**—Lockemann and Möllers state that the weight and antigen content of tubercle bacilli cultures increase up to the sixth week and then both show a decline. Lockemann says that weighing the cultures now and then gives oversight as to the course of the growth.

Deutsche Zeitschrift für Chirurgie, Leipsic

November, CXXV, Nos. 5-6, pp. 413-617

123 Heliotherapy of Tuberculosis of the Foot. W. Leuba.
124 Fascia as Substitute for Tendons and Ligaments. (Freie Transplantation der Fascia lata als Ersatz für Sehnen und Bänder.) K. H. Glertz.
125 Castration Does Not Modify Susceptibility to and Course of Tuberculosis. T. Yatsushiro.
126 Biondi's Technic for Exclusion of the Pylorus. S. Porta.
127 Circumscribed Local Hyaline Degeneration in Kidney Responsible for Hematuria. (Zur Frage der einseitigen Hämaturie. Erkrankung der Kapillaren des Markteils.) E. W. Baum.
128 Acute Hemorrhagic Pancreatitis. J. Bungart.
129 Prophylaxis of Thrombosis. (Experimentelle Untersuchungen über die Thrombosenfrage, nebst Angabe einer einfachen Methode zur Koagulationsbestimmung des Blutes.) T. Yatsushiro.
130 Circular Resection of the Trachea. G. Alagna.

Medizinische Klinik, Berlin

December 14, IX, No. 50, pp. 2053-2098

131 *Radiotherapy in Gynecology. W. Stoeckel.
132 *Diagnosis of Miliary Carcinosis of the Lungs. R. Schmidt.
133 Digitalis in Therapeutics. R. Gottlieb.
134 *Amenorrhea during Lactation and its Influence on Conception. Thiemich.
135 Treatment of Malignant Syphilis. (Die Behandlung der malignen Syphilis.) G. Mornwetz.
136 Inguinal Hernia. (Die Radikaloperation der Leistenhernie.) Dreesmann.
137 Improved Technic for the Wassermann Reaction. (Verwendung grösserer Serumdosen zur Verfeinerung der Wassermannschen Reaktion.) R. Ledermann.
138 Pathology of Tuberculosis. C. Hart.
139 *Blood-Pressure and Blood-Picture. (Blutdruck und Blutbild.) E. Münzer. Commenced in No. 49.

131. **Radiotherapy in Gynecology.**—Stoeckel says that although it is too early yet to form a decisive opinion on the value of Roentgen-ray and radium treatment of pelvic diseases in women, yet the results to date have been better than ever realized before under other measures. The radio-active substances have been applied hitherto by the technic borrowed from the Roentgen experience, but time may show that they require a special technic for them. Systematic biologic research is urgently needed to determine the best filtering technic, the dosage and the optimal distance from the focus.

Roentgenotherapy is equivalent to operative castration. For cancer this is not enough, and since it has been found that the gamma rays of the radio-active substances surpass the Roentgen rays in penetrating power, these are being used for cancer more and more, and even the most skeptical must admit that nothing has ever yet been known with such an enormous primary destructive action on cancer cells. The extent of this destructive action is the problem now; the microscopic findings in the adjoining tissues have been surprisingly favorable in some cases but ominous in others. We do not know what is occurring in the regional lymph-nodes and possibly already infected lymphatics. For gynecologic purposes at least 0.1 gm. of the radium salt or mesothorium are necessary, and this costs over $7,500. The sudden demand for mesothorium far outran the supply, and the manufacturers' trust combined and cornered the market, so that a previously unheard of situation has developed, rendering further therapeutic research in this line a matter of financial resources. Never before has Science had to bargain and beseech in the market-place for a chance to try out her new therapeutic discoveries.

132. **Carcinosis of the Lungs.**—Schmidt reports a case in which he made the correct diagnosis during life of miliary carcinosis of the lungs. The patient was a woman of 36 who began to cough and have difficulty in breathing, with other

symptoms suggesting miliary tuberculosis but the normal heart and lung findings, afebrile course and absence of the diazo reaction excluded this. The intense dyspnea and tachypnea and the discovery of enlarged lymph-nodes in the left supraclavicular region confirmed the presumptive diagnosis of miliary carcinosis and necropsy two months after the first symptoms corroborated this. In a second case the carcinosis was assumed during life and post mortem to be miliary tuberculosis, until the microscope revealed the carcinosis. In both cases a minute cancer was found in the stomach, and Schmidt thinks this is generally the rule: minute primary cancer plus great tendency to metastasis; large primary cancer, little metastasis. He suggests that possibly in large cancers toxic substances are formed in such profusion that antibodies are generated in response, which practically immunize the rest of the body. Miliary carcinosis of the lungs seems to affect mostly young persons; the nine other cases he cites from the literature were all in persons from 23 to 36 with the exception of one aged 74.

134. **Amenorrhea During Lactation.**—Thiemich has had conditions investigated in 1,200 cases and has found it a universal rule that as long as the women suckled their infants and gave them no other food, there was no menstruation and no new conception. Large families, with ten or twelve children, he has never encountered except among wage-earners and only when the infants were brought up on artificial food after the first week or two. The mothers, not nursing the child, soon menstruated again and a new pregnancy speedily followed. Another fact brought out by his research is that in these large families only 50 per cent. of the children survive the first year. The mothers thus unduly prolific were found invariably much debilitated and their babies were puny. Everything, therefore, points to the vital importance of breast-feeding, if for nothing else to protect the mother against a new pregnancy until she is physiologically ready for it.

139. **The Blood-Pressure and the Composition of the Blood.**—The data presented by Münzer show that many cases of anemia are distinguished by lymphocytosis and low blood-pressure for which a constitutional inferiority of the glands with an internal secretion is unquestionably responsible—the thymic-lymphatic status. Persons with lymphocytosis and low blood-pressure stand general anesthesia badly, while persons with high blood-pressure usually stand it well. This is easily understood by the connection between the blood-pressure and the ductless glands, especially the chromaffine system. The chromaffine substance is used up during general anesthesia, and consequently persons with a constitutionally inferior chromaffine system are liable to suffer most from it. The discovery of lymphocytosis and a low blood-pressure thus warns of the need of caution before attempting an operation under general anesthesia. Persons with high blood-pressure and normal or subnormal numbers of lymphocytes in the blood have a sound and vigorous chromaffine system and are thus able to take the anesthetic without harm, other things being equal. He adds that the various diatheses are probably merely the manifestations of the behavior of the ductless glands.

Münchener medizinische Wochenschrift

December 16, LX, No. 50, pp. 2769-2824

140 *To Correct Crippled Joints. (Ueber operative Nearthrosis.) Helferich.
141 Points in Technic for Serodiagnosis. (Weiterer Beitrag zur Frage nach dem Einfluss des Blutgehaltes der Substrate auf das Ergebnis der Prüfung auf spezifisch eingestellte Abwehrfermente mittels des Dialysierverfahrens.) E. Abderhalden.
142 Neosalvarsan in Tertian Malaria. P. Baetge.
143 *Diagnosis of Syphilis by the Ear. (Ist konstitutionelle Syphilis vom Ohr aus zu diagnostizieren?) O. Beck.
144 Nature and Distribution of Vasoconstrictor and Oxytocic Substances in the Body. W. Lindemann and B. Aschner.
145 Serodiagnosis of Cancer. C. Fried.
146 Biology of Spirochetes. (Methoden zum Nachweis von Sprossungsvorgängen an Spirochäten.) Meirowsky.
147 Camphor in Treatment of Pneumonia. M. Hötzel.
148 The Diagnosis of Pregnancy. (Die Hohe Schule für Aerzte und Kranke. XVI.) M. Nassauer.

140. **Operations to Restore Joint Functioning.**—Helferich has compiled about 300 cases of operations on joints with interposition of soft parts, not including twenty on the jaws. The results in this latter group have been constantly excellent. The method was applied to the elbow in 120 cases. Bier interposes a flap from the triceps or its tendon plus adjacent connective tissue; Lange used in two cases the brachial muscle with excellent outcome. Hoffa prefers a pedunculated flap of fat, while others take a loose flap. Putti has reported most excellent results in twelve cases with an interposed loose flap of fascia; the joint excursions run up to 120 or even 130 degrees in eleven old traumatic cases. All extol the advantages of the interposed flap. Helferich knows of only a very few cases in which the method has been applied to the shoulder, ankle, wrist, fingers or toes, but the results were good in nearly all.

The hip-joint has shown such excellent results from the method in the forty-nine cases in which it has been applied that one is amply justified in attacking a crippled hip-joint. Vulpius says that he has obtained his best results with the method in cases of ankylosis of the hip-joint, and points with pride to a case of total ankylosis of both hip-joints which he remedied completely. The patient can now, a year later, use the joint freely and flex the thigh at a right angle.

The knee is less amenable, and failures are comparatively frequent—though growing less so—but they are far outbalanced by such a case as Payr has described in which a cavalry officer was restored to active service when he was being compelled to resign on account of a stiff knee. Helferich has found records of seventy-five such operations on the knee. When the crippling is due merely to the patella growing to the femur, interposition of a soft-part flap naturally will remedy the condition. This was the first indication for which the method was devised, but it has been done as a separate operation only in eight cases to date. In conclusion Helferich protests against Murphy's remark that the technic for the nearthrosis operations requires a master's hand. Any trained surgeon can do it, and especially the younger surgeons will have gratifying success with it.

143. **Ear Symptom of Syphilis.**—This communication from Urbantschitsch's clinic at Vienna states that constitutional syphilis should be suspected, even when there are no other signs of it, when the ear is apparently otherwise normal and yet the Rinné test proves positive. He theorizes to explain the mechanism of the response. The familiar test is made by holding a vibrating tuning-fork opposite the opening into the ear and then transferring it to the mastoid process. Under normal conditions air conduction of the sound predominates over bone conduction; with morbid conditions in the nervous apparatus of the ear, air conduction predominates, but both are much briefer than in health. Beck applied the test to numbers of syphilities whose ears and hearing were apparently entirely normal, and he found in 80 per cent. that bone conduction was materially shortened. This finding is characteristic also of conditions accompanied by increased intracranial pressure, and he thinks that this occurs probably also in constitutional syphilis, even before the syphilis induces symptoms.

Wiener klinische Wochenschrift, Vienna

December 4, XXVI, No. 49, pp. 2021-2064

149 Acute Leukemia and Its Treatment. (Ueber die Reaktion der leukopoetischen Organe von Lymphatikern auf Infekte.) B. O. Pribram and B. Stein.
150 Hexamethylenamin in Dermatology. O. Sachs.
151 Fever as Only Symptom of Latent Syphilis. H. Kraus.
152 Serodiagnosis of Liver Disease. R. Hertz and H. Brokman.
153 Metabolic Findings after Treatment of Leukemia with Benzol. (Stoffwechseluntersuchungen bei einer mit Benzol behandelten chronischen, leukämischen Myelose.) B. Döri.
154 Superheated Air in Treatment after Operations. F. Orthner.
155 The Mineral Springs of America and their Therapeutic Utilization. (Amerikanische Balneologie.) F. v. Oefele (New York).

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156 Opening the Lacrimal Sac through the Nose. (Die nasale Eröffnung des Tränensackes.) O. Mayer.
157 *Atropin in Treatment of Dysmenorrhea. J. Novak.
158 *The Danger of Combining Anesthetics. (Postoperative Morphiumvergiftung.) H. Hinterstoisser.
159 *Later Report on Cancers Treated with Radium. Sparmann.
160 Abortive Mercurial Treatment of Syphilis. G. Scherber.
161 Neosalvarsan in Syphilis. (Ueber konzentrierte Neosalvarsaninjektionen.) W. Kerl.
162 *Cholera Epidemic in Servia, 1913. R. Strisower.

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163 *Influence of Alcohol on Rabbit Liver and Testicles. J. Kyrle and K. J. Schopper.
164 *Radiotherapy of Trachoma. (Zur Therapie des Trachoms mit ultravioletten Licht.) F. Rössler.
165 *Roentgen Therapy of Tubercular Lymph-Node. J. Philipowicz.
166 *Chemical Bases for Treatment of Cancer. E. Freund.

157. **Atropin in Treatment of Dysmenorrhea.**—Novak found a history of painful menstruation in nearly every one of his cases of puerperal bradycardia and arhythmia. This suggested that the dysmenorrhea was traceable to the same cause as the other, and that it might be influenced by atropin, which has such prompt action on bradycardia due to abnormal irritability of the sympathetic nervous system. In small doses atropin has a stimulating and in large doses a paralyzing action on the sympathetic nervous system, and the few instances of failure to relieve the dysmenorrhea were probably due to incorrect dosage. The treatment was applied in large numbers of cases but only thirty-eight were followed for any length of time; thirty of the women were materially benefited by the atropin. The menstruation occurred without pain or so little that it was negligible. The predisposition to dysmenorrhea is either congenital or acquired, but the pains usually can be classed as (1) menstrual colic, possibly a kind of vascular crisis; (2) pains suggesting labor, due to clots or other abnormal contents in the uterus, or accumulation of blood with obstruction to evacuation, and (3) the pain from hyperemia—local congestion. Atropin arrests the pains by paralyzing the nerve terminals belonging to the vegetative nervous system. Novak's patients stated that the menstrual discharge increased in amount after taking the atropin, possibly from relaxing the spasmodic contraction of the vessels or of the uterus or both. Papaverin also has a paralyzing action on the smooth muscles, and may prove useful in combating dysmenorrhea. He expresses surprise that atropin has not been used more in gynecology as it seems so promising in this field, to ward off impending abortion, to relax painful stricture of the bladder sphincter or anus, or to keep the genital organs still and prevent ascending infection in case of local inflammatory processes. On account of danger of hemorrhage from atony of the uterus, atropin is necessarily contra-indicated when abortion or delivery is once under way and there is considerable uterine hemorrhage.

158. **Dangers of Combining Narcotics.**—Hinterstoisser states that considerable use is made in his service of the method of combining anesthetics and sedatives as a preliminary to and during operations, but he was recently startled by finding that one patient, a woman of 41, did not rouse after appendicectomy but lay in stupor for three days, with no control over bladder and rectum. Consciousness gradually returned the fourth day. He ascribes this prolonged stupor to the cumulative action of the drugs used, narcophin, scopolamin, ether, chloroform and morphin. Symptoms of severe intoxication followed the dose of morphin, cyanosis, respiration-rate only six or seven, then one or two to the minute, pulse slow but strong, the eye reflexes suspended. Artificial respiration was required for three hours. Then the paralysis of the respiration center was overcome by venesection and injection of Ringer's solution (withdrawing 300 c.c. blood and injecting a liter of the Ringer fluid). The woman began to breathe at once about sixteen times a minute, and the danger was over, although the deep somnolency continued for three more days. Brauer has recently reported a case of morphin poisoning in which no benefit was realized from venesection and saline infusion, and the patient was saved only by an emergency tracheotomy with oxygen supplied directly to the bronchi for several hours. The pulmotor failed to help in this case. Brauer ascribes the fatality in such cases not to the morphin but to the conditions which permit fatal intoxication of the respiration center by the carbon dioxid retained in excessive amounts owing to the deficient respiration for which the morphin is responsible. All the arguments thus sustain and explain the efficacy of venesection plus infusion of Ringer's fluid or isotonic salt solution.

162. **Cholera in Servia.**—Strisower reviews the experiences with 650 cases of cholera last summer, and bacteriologic examination of 2,000 persons. The mortality was from 41.4 to 42.9 per cent, irrespective of the treatment, but the 393 patients treated with potassium permanganate were all free from vibriones at the last examination, with four exceptions, while the proportion of carriers left after iodin, opium and quinin treatment was respectively 15, 75 and 10 per cent. One physician stated that he had had good results with yoghurt in convalescence from cholera. One epidemic broke out when a cavalry troop was quartered on a field where large numbers of soldiers had died of cholera and been buried several weeks before.

163. **Experimental Alcoholic Cirrhosis of the Liver.**—In the research reported 31 rabbits were given alcohol in various ways, injected intravenously or subcutaneously or poured through a tube into the stomach. The amount thus given the animals with an exclusively vegetable diet corresponded approximately to the daily ingestion by a man weighing 176 pounds of a quarter of a liter of 50 per cent. whisky, *Schnaps*. The longest period before the animal was killed was thirteen weeks. Among the 17 given the alcohol by the stomach, evidences of ulceration were found in 10. Signs of pronounced cirrhosis of the liver were found in all but 9 of the animals, and the testicles showed extreme atrophy. The histologic changes in the testicles resembled in every respect those found with chronic alcoholism, as reported by Simmonds, Kyrle, Weichselbaum and others. The fact of a predisposition to injury from alcohol is shown by the negative findings in 9 of the animals, although the conditions of the research had been identical for all.

164. **Radiotherapy of Trachoma.**—Rössler has been applying the Finsen method of treatment to trachomatous eyes, incited thereto by Groenholm's report of his unusual success with this treatment in trachoma. Rössler states that seventeen of the twenty-one thus "finsenized" were cured or materially improved, and in only four of the cases did the affection continue a progressive course. The cases of mild uncomplicated trachoma were the ones most benefited, and Rössler never witnessed such prompt and permanent cures under any other measures.

165. **Roentgen Treatment of Tuberculous Lymph-Nodes.**—Philipowicz says that his experience in twenty-five cases shows that the Roentgen ray is the most effectual of all measures in treatment of tuberculous lymphomas. The lymph-nodes subside in size under the exposures, he reiterates, the fistulas heal with a flexible cicatrix and the whole organism seems to be benefited while there are absolutely no subjective inconveniences. He gives the details of his twenty-five cases; three of the four given from 20 to 28 exposures are entirely cured and the fourth is nearly cured. All the twenty-five patients were materially improved, even those that had only a few exposures to date. The lymphomas responded alike whether they were still hard or had already softened. The sittings were for ten minutes, once in one or two weeks. No reaction on the part of the skin was ever noticed. About fifteen exposures are generally required. Danger of interfering with growth processes contra-indicates Roentgen treatment under the age of 10, but this seems to be the only contra-indication.

166. **Chemical Bases for Treatment of Cancer.**—Until recently, Freund says, the why, whence and whither of cancer have been a sealed book to us, but experimental chemistry has lately shown that in cancer some normal element in the cell seems to have been used up and some foreign element has taken its place. This starts the cell to malignant proliferation or provides the soil on which something else is then able to accomplish this. This change in the cell has been rendered evident by recent biologic research which has shown among other things that the extract of tissues from certain points known to be a favorite developing point for cancer—such as gastric ulcer tissue—does not possess the normal tissue property of destroying cancer cells. This extract lacks the normal fat acids with which the normal cell protects itself against cancer. More than this, the intestinal content of a person with cancer—even when the cancer is not in the alimentary canal—does not contain the normal fat acids, but generates abnormal fat acids which induce in turn abnormal break-down

of albumin. The abnormal products which result from this, act like a poison on the cells which are already suffering from the lack of the normal lipoids.

The problem of cancer is thus transferred to the simple processes of tissue break-down in the intestines, and these are to a certain extent under our control. The task now before us is to study the conditions which favor the development of these baleful substances in the intestine content, and means to prevent their production. The effect realized can be estimated by determining the changes in the cancer cell-destroying property of the serum. A horse was immunized by injection of puncture fluid from a patient with cancer, and its serum, which at first destroyed cancer cells only at a 1 to 5 dilution, by the end of the year had acquired a destructive property in a 1 to 300 dilution. Freund has no therapeutic results to report as yet, but is confident that the results of his research represent an important advance in our knowledge of cancer. It points the way to neutralize with antibodies the cancer-fostering substance, and to prevent its production in the intestines. The substance in question seems to be a nucleoglobulin differing from ordinary nucleoglobulin in that it contains more carbohydrate and fat acid.

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167 Bladder Calculi in China. (Chinesische Blasensteine.) E. Pfister.

Riforma Medica, Naples

December 6, XXIX, No. 49, pp. 1345-1372

168 Research on the Cobra Venom Serum Test. (L'azione ostacolante ed attivante del veleno di cobra nelle reazioni emolitiche con sieri di neoplastici.) C. Rubino and C. B. Farmachidis.

169 *The Tuberculous Soil plus Gonorrheal Arthritis. (Il terreno tubercolare nelle artriti blenorragiche.) L. Tommasi.

170 *Technic for Operative Treatment of Edema and Varices of the Legs. G. D'Oria.

December 13, No. 50, pp. 1373-1400

171 The Blood Changes in Exophthalmic Goiter. (Le alterazioni del sangue nel morbo di Flaiani-Basedow.) D. Salvatore.

169. **Gonorrheal Arthritis.**—Tommasi has noticed that when gonorrheal arthritis develops he has always been able to find evidence of a preceding tuberculous infection, generally previously unsuspected, until the thorough examination at this time reveals it. He gives the details of twelve cases of the kind and also of an equal number of cases in which the tuberculosis was in a florid stage when the gonorrheal arthritis developed. The tuberculin reaction, he states, will be found positive in cases of gonorrheal arthritis, as a rule, and both the gonorrhea and the tuberculosis require treatment. The serous membranes in the joints are less adapted to defend themselves against infection than others and, especially in latent, torpid tuberculosis, the joints are a point of lessened resistance.

170. **Operation on Artery Instead of Vein for Varices.**—Bondi argued that if the supply of blood to the varicose veins were cut down, the veins could take care of what did reach them, and the normal balance would be restored. D'Oria reports two cases in which treatment was applied on these principles, a segment of the superficial femoral artery being cut out between two ligatures, a short distance below the point where the deep femoral leaves the artery. The patients were a man of 39 and a woman of 34, and both had long suffered from varices and edema of the left leg. The small operative wound rapidly healed and all disturbances gradually subsided, leaving the patient entirely free from all varices and edema in that limb, and the cure has persisted for three years to date in both cases. In both instances the trouble in the vein was of thrombotic origin.

Brazil-Medico, Rio de Janeiro

November 15, XXVII, No. 43, pp. 462-473

172 The Arterial Pulse and Its Physiologic Variations. A. Novis.

November 22, No. 44, pp. 474-485

173 Practical Prophylaxis of Tuberculosis. P. Barbosa.

Semana Medica, Buenos Aires

November 6, XX, No. 45, pp. 1061-1120

174 Advantages of Oxygen in Treatment of Pneumonia in Infants. R. D'Ovidio.

175 Sanitation of Brazilian Province. (Los problemas higienicos de Tucuman.) P. J. Garcia.

176 Condition of the Teeth in Connection with Child's Mental Development. (En pro de la creacion de clinicas dentales escolares.) J. B. Patrone.

177 Production of Artificial Amebas. V. Delfino.

November 13, No. 46, pp. 1121-1176

178 Stimulating Action of Hypophysis Extract on Stomach Motor and Secretory Functioning. B. A. Houssay.

179 Diagnosis of Venereal Disease. J. Barfiiatti.

180 Temperance Campaign in Venezuela. V. Delfino.

November 20, No. 47, pp. 1177-1236

181 Symptomatology of the Myocardium. A. Viton.

182 Tuberculin Treatment of Pulmonary Tuberculosis. P. A. Guerrero.

183 Abuse of Native Liquor, Mate. N. Lugo-Viña.

Archives des Sciences Biologiques, St. Petersburg

XVII, No. 5, pp. 425-504. French Edition

184 Physiology of the Gastric Glands. G. P. Zéllony.

185 The Hemolysin of the Bacillus Subtilis—Subtilolysin. M. N. Margouliès.

186 Antitoxin Content of the Blood of Normal Horses and Its Production in the Natural Conditions of Life of these Animals. S. K. Dzerszgowski.

187 Physiology of the Nervus Terminalis in Selachians. K. N. Krzyszkowski.

188 The Ferments of the Osteomyelitis Bacillus. E. Glinka.

189 Guanilic Acid. E. Glinka.

St. Petersburger medizinische Wochenschrift

November 28, XXXVIII, No. 22, pp. 323-335. In German

190 Cystic Fibromyoma of the Uterus; Three Cases. W. Beckmann.

191 The Latest Theories as to the Descent of Man. (Die neuesten Forschungsergebnisse über die Abstammung des Menschen.) W. Schiele.

Hospitalstidende, Copenhagen

December 10, LVI, No. 50, pp. 1479-1518

192 *Ions in Treatment of Tuberculous Nose and Throat Affections. (Behandling af tuberkuløse Lidelser af øvre Luftvejes Slimhinder med Reyn's Elektrolyse.) O. Strandberg.

192. **Ions in Treatment of Tuberculous Nose and Throat Affections.**—Strandberg has been applying ions in treatment of tuberculous affections in the mucous membrane of the upper air passages, using Reyn's method of inducing the production of nascent iodin in the diseased tissues by administering internally potassium iodid and then applying electrolysis to the spot. The method is based on Pfannenstill's two-route technic for such lesions. Reyn found that 5 gm. of sodium iodid seemed the best dosage for adults and that the largest proportion of iodin was found in the serum after about an hour and a quarter, and hence that this is the propitious moment to apply the electrolysis. The method was applied at the Finsen Institute to 217 patients with lupus. In some the lupus had resisted all other treatment for years; in one case of twenty years' standing the lupus healed under the electrolysis. The experiences on the whole have been exceptionally favorable, especially in the old rebellious cases. It is now applied as a routine measure in all cases of lupus of the mucosa in the upper air passages.

Hygiea, Stockholm

November, LXXV, No. 11, pp. 1105-1232

193 The Oxyuris and Appendicitis. G. Bäärnhielm.

Norsk Magazin for Lægevidenskaben, Christiania

December, LXXIV, No. 12, pp. 1601-1760

194 *Albuminuria, Blood-Pressure, etc., in Schoolchildren. (Undersøkelser over albuminuri, blodtryk etc. hos skolebarn.) J. Bugge.

195 Anatomic Conditions after Successful Glaucoma Operations. (Anatomisk undersøkelse av operationsarrene og av de aplanerte papilleexkavationer efter vellykkede glaukomoperationer.) S. Holth.

194. **Albuminuria and Blood-Pressure in Children.**—Bugge examined 1,076 school children at Christiania and when, with the Heller test, albumin was found in the urine, he systematically examined the urine in the morning and during the day again, keeping this up for a long time. Albumin was evident in 14.9 per cent. of the total 1,076. The orthostatic type was noted in 13.3 per cent. of the girls and 3.5 per cent. among the boys. He studied the connection of lordosis with the albuminuria in 300 boys, measuring the spine. Physical exercise brought on albuminuria, 21 per cent. of the healthy boys developing albuminuria after gymnastic exercises.